FARM, SCHOOL AND CHURCH BELLS.

THE STEEL COMPOSITION BELLS made by Blymyer, Norton & Co., of Cincinnati, rival the Copper and Tin Bells in purity, richness, and volume of tone; are equally durable; and cost less than one-third as much. Hundreds are now in use in various parts of the United States and Canada. None have failed to give satisfaction. They are made of the best quality of metal; and the mountings are of the best material and finish.

PRICE LIST:

They are delivered on board Cars or Boat at Chicago, for the following prices in American money:—

Diameter.	Weight.	Price.
14 inches.	50 lbs.	$ 8 00
16 "	90 "	12 00
18 "	100 "	14 00
20 "	130 "	18 00
24 "	200 "	25 00
28 "	400 "	60 00
36 "	800 "	120 00
40 "	1,000 "	175 00

Orders, enclosing the money, may be addressed to

A. T. BATES & CO.,
195 Washington Street, Chicago.
Or,
Editor CANADA FARMER, Box 498, P.O., Toronto.

v5-7-2t

MILLER'S
INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.

v4-14-tf

FARM LOTS FOR SALE CHEAP,
in a good settlement, with every convenience.

Apply to C. J. BLOMFIELD, Sec.
Canadian Land and Emigration Co.,
Toronto Bank Buildings, Toronto.

v5-4-tf

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!
AGRICULTURAL IMPLEMENTS
OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper.

PAXTON TATE & CO.

Port Perry, March 28, 1868. v5-7-tf

Markets.

Toronto Markets.

"CANADA FARMER" Office, April 29th, 1868.

The produce market since our last review has been dull and uninteresting. Although navigation is now open there has been little or nothing doing.

Wheat—The market remains unchanged. Holders are firm at $1 66 for cargo lots of spring, with buyers at $1 64 and $1 65. One small cargo lot of spring sold early in the week at $1 64, but the sample was not choice; and a few car loads sold at $1 65. In fall wheat there was nothing doing. Street prices are: spring $1 64 and $1 65, midge proof $1 66. No fall wheat coming in.

Oats—There has been nothing doing during the past week in this grain. Quotations are nominal.

Barley—The receipts of this grain are very small, and stocks being exhausted there is nothing doing. The nominal quotations are $1 40 to $1 45 for choice barley.

Peas—The market is quiet but firm. Lots are held at 92c, with a sale at 90c for a lot of 1,000 bushels.

Seeds—The market is quiet but firm. We quote clover firm at $4, timothy, $1 50 to $2 25, flax seed, $1 25 to $1 60.

Flour—The market remains dull and unchanged. During the past week there has been very little doing—hardly enough to establish quotations. For No. 1 superfine holders are asking $7 15. A sale took place yesterday at that figure. In extra and superior there was nothing doing.

Oat Meal—The market remains nominally unchanged.

Pork—The market is quiet. A slight dullness has taken place. We, however, do not change our quotations. Mess, $20 to $21; Prime Mess nominal at $16 to $17.

Cut Meats—In fair demand. Smoked hams and rolls 12 to 12½c city cured. Smoked shoulders, 9 to 10c.

Butter—New in good local demand. No good old in market. We quote for sweet yellow in large rolls or tubs 21c to 25c; old, if poor quality, offering at 14 to 15c.

Cheese—Unchanged, 10½c to 11c.

Bacon—Steady at the advance; 9½c offered for city Cumberland.

Eggs—Scarce and wanted at 14c.

Hides, Skins and Wool.—The following are the prices paid for skins:—Green Butchers' 5½c; Farmers', 6c; Calfskins, 10c; Sheepskins, $1 to $1 30.

The following are the selling prices of hides:—No. 1 inspected, 7¾ to 8c; Calves Skins, 12c.

Wool is dull. Pulled sells at 23c. Fleece, none in the market.

THE CATTLE MARKET.

There has been an average trade done in cattle during the past week. Prices remain unchanged. 1st class, $3 per cwt. 2nd class, $2. 3rd class, $6.

Sheep—Have been in demand and sold as follows:—1st class, $7 each. 2nd class, $6. 3rd class, $5.

Lambs—Are beginning to arrive freely. Prices are:—1st class, $3. 2nd class, $2 to $2 50. 3rd class, $1 50 to $2 00.

Calves—Of the better class have been scarce and in demand. We quote:—1st class, $8 each. 2nd class, $6. 3rd class, $2 00 to $3 50 each.

Montreal Markets.—*Flour*—Superior extra, $8 to $8 25; extra, $8 to $8 10; fancy, $7 85; Welland Canal, superfine, $7 61; to $7 00; superfine No. 1 Canada wheat, $7 55 to $7 65; superfine No. 1 Western wheat, $7 55 to $7 75; superfine No. 2 Western wheat, $7 30 to $7 35; bag flour per 100 lbs. $3 60 to $3 70.—*Wheat.*—Canada fall, none; spring $1 72 to $1 73; Western, $1 65 to $1 70.—*Oats.*—Per 32 lbs., 49c to 50c.—*Barley.*—Per 48 lbs $1 15 to $1 20.—*Butter.*—Dairy, 18c to 21c; store packed, 18c to 22c.—*Ashes.*—Pots, $5 75 to $5 80; pearl, $6. *Pork.*—Mess $21,50 to $22 00; prime mess, $16 50 to $16 75; primo $15 75 to $16.—*Dressed Hogs:*—none.—*Peas.*—47c to 98c.—*Rye Flour.*—$6 00 to $6 10.

New York Produce Market.—*Flour*—Dull, receipts 5,200 barrels and 5,900 bags; sales, 6,800 bbls, at $9 to $9 65 for super State and Western; $10 10 to $10 60 for common to choice extra State; $10 10 to $11 25 for common to choice extra Western.—*Wheat*—More active; receipts, 16,200 bushels; sales, 51,000 bushels at $2 45 to $2 46; No. 2 spring, $2 55 to $2 60; No. 1 spring at $3 15; white Michigan, $3 10; white Canada at $2 50, No. 1 and 2 spring mixed.—*Rye*—Quiet.—*Corn*—Dull; receipts, 109,693 bushels; sales, 63,000 bushels at $1 12 to $1 16 for new mixed Western afloat; $1 16 to $1 17 old afloat.—*Barley*—Quiet; receipts $18,100 bushels.—*Oats*—Quiet; receipts, 26,075 bushels; sales, 28,000 bushels at 64½c. for Western in store; 65c afloat.—*Provisions*—Pork firmer and in fair demand at $29 15 to $29 37 for new mess; $27 50 to $28 50 for old ditto.—*Lard*—Firmer, and quiet at 18¾ to 18¾c.

Milwaukee Markets, April 29.—Wm. Young and Co.'s report.—*Wheat*—Receipts, 48,000 bushels; shipments, 3,000 bush. No. 1 lower, but active and firm at $2 14; No. 2 lower, but active and firm at $2 04.—*Flour* firm at $9 50.—*Pork* firm at $28.—*Freights* firm at 12c.

Chicago Markets, April 29.—Wm. Young & Co.'s report.—*Wheat*—Receipts, 43,000 bushels; shipments, 9,000 bushels; No. 2 firm at $2 12.—*Corn* active at 86½c.; receipts, 92,000 bushels; shipments, 111,000.—*Pork* firm at $28 50.

Contents of this Number.

	Page
THE MONTH	129
THE FIELD:	
"Bush" and "Clearing"	130
Improved Corn-Sheller (with cut)	130
On the Importance of Thick-Sowing of Clover Seed	130
Should Potatoes be Planted Whole	131
Eureka Cutting Box (with cut)	131
Ruettel's Patent Hay Puller (with cut)	131
Another Farm Balance Sheet	131
Flute for Measuring Bins of Apples, &c.	131
Sharp's Improved Turnip	131
What Rabbits cost English Farmers	131
CANADIAN NATURAL HISTORY:	
The Black Bass, (with engraving)	132
Earl Birds	132
The Woodcock	132
STOCK DEPARTMENT:	
Affection in Animals	133
A good Horse Barn (with cuts)	133
Production of Sex	133
Treatment of Brood Mares	133
Summer-Fatted Hogs	133
Chaff for Fodder	133
THE DAIRY:	
New Cheese Factories	134
Dairy Cattle	134
ENTOMOLOGY:	
The Wheat Midge and its Parasites	134
Entomological Speculations	135
State Entomologist in Missouri	135
CORRESPONDENCE:	
Salt in Hydrophobia	136
Fall Sowing of Grass Seed	136
EDITORIAL:	
Iowa Agricultural College (with large engraving)	136
The New Agricultural, Mechanical and Industrial Museum	137
The Free Land Grants	138
New Agricultural Exchanges	138
LITERARY NOTICES:	
The Galaxy	138
The American Short Horn Book	138
AGRICULTURAL INTELLIGENCE:	
The Rev. Patrick Bell, L.L.D.	138
Hamilton Sheep Shearing Exhibition	139
New Material for Paper	139
VETERINARY DEPARTMENT:	
Thread-Worms in the Air Passages of Lambs	139
Ringbone	139
THE APIARY:	
Hiving Bees	139
A Bee Flower	139
POULTRY YARD:	
Spring Exhibition of Poultry (with illustration)	140
HORTICULTURE:	
The Gardners' Friend (with cut)	141
Orchard Culture	141
More Superb Pansies	141
Liquid Grafting Wax	142
Fruit Prospects—A Thief "Sold"	142
Planting Flowers for Autumn	142
The Fuchsia	142
What Pears to Plant	142
Raspberry Culture	142
POETRY:	
By the River	142
THE HOUSEHOLD:	
Best Mode of Roasting Fish, Ducks, &c.	142
How to Manage Kerosene Lamps	142
MISCELLANEOUS:	
A Logograph	143
Josh Billings' Philosophy	143
Durable Paint	143

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 20 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for..... NINE DOLLARS.
TWENTY COPIES for..... SIXTEEN DOLLARS.
FORTY COPIES for..... THIRTY DOLLARS.
ONE HUNDRED COPIES for..... SEVENTY DOLLARS

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer,*" and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director.

THE CANADA FARMER.

Vol. V. No. 10. TORONTO, CANADA, MAY 15, 1868. Postage Free.

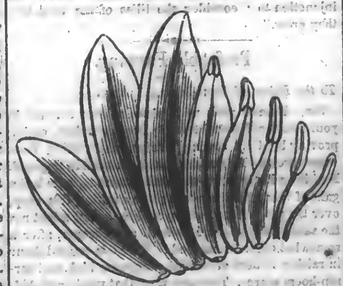
The Field.

The Reproductive Organs of Plants.

In former articles we have given a brief outline of the leading principles of vegetable structure and growth, under the heads of the Seeds of Plants, Germination, the Root, the Stem, and Leaves. To complete the summary, it now only remains to notice the Flower, or reproductive system of Plants. There is the closest analogy between a flower and an ordinary branch. Both spring from a bud, on similar situations of the stem; both follow the same order of arrangement, and in irregular or redundant growths one is frequently transformed into the other. The proofs and illustrations of the analogy of the two structures are numerous and extremely interesting, but cannot be more than merely alluded to in a notice of this brief and elementary character. It will be sufficient here to state that the flower is a branch, shortened and modified in a particular manner for the purpose of producing not buds for the growth of the individual, as in the case of ordinary branches, but seeds capable of independent growth, and destined for the perpetuation of the species.

As the whole flower is a modified branch, so are the separate parts of a flower modifications of leaves. The transition, indeed, is often very beautifully manifest, and the frequent substitution of one for the other, affords striking evidence of the truth of the theory. The parts of a complete flower are as follows:—An outer circle of small leaves, usually green, forming the flower-cup or *calyx*. The separate leaflets of the calyx are called *sepals*. Within this is another circle of generally larger leaflets, usually of some bright colour, and of very delicate texture. The whole forms the *corrolla*, and the separate members are termed *petals*. Every one at all familiar with these beautiful formations knows that there is an endless diversity in both these parts of a flower. Sometimes the calyx is absent or deciduous. In other instances it is persistent after the corrolla has perished, and forms either a covering or a conspicuous appendage of the fruit. Again, this outer circle may assume the bright hues and the general appearance of the corolla, as in the fuschia and other familiar examples; or it may indeed take the place of the corrolla altogether, the latter being absent, or only rudimentary in the form of minute and inconspicuous scales.

These, though commonly the most showy portions of the flower, are nevertheless but the outer covering of the more important parts. They are merely the floral envelopes. The essential parts are yet to be noticed. Springing usually from the base of the petals, but sometimes adherent to them more or less, is a circle of delicate organs called stamens, consisting of a slender stalk or *filament*, supporting a slightly enlarged head called the *anther*, usually two-lobed, and filled with a powdery substance, called *pollen*, which, when the flower is fully developed, is discharged through a fissure or opening of the anther,



and serves to fertilize the innermost organ of the flower containing the ovule or infant seed. This centre portion is the seed-vessel or pistil, and consists, where all the parts are fully developed, of the

ovary at the base, enclosing the seed, and bearing a single or divided prolongation from the summit, called the *style*, capped by a slightly dilated head, the *stigma*, which is moist, and destitute of the usual covering or cuticle that envelopes nearly every other part of a plant. As might be expected, the filament of the anther and the style of the pistil are not always present, neither being essential to the organ. Where the flower is comparatively erect, the stamens usually surmount the pistil, and the pollen from the anther drops on to the adhesive surface of the stigma below. But in pendulous or drooping flowers, where the relative position of the parts is reversed, a corresponding modification is seen in the development of these organs. The style is then much lengthened, and carries its head beyond the stamens, so that, as the flower hangs downwards, the latter will still be above the stigma, in such a position as to shed their contents on the stigma below them. A beautiful instance, one among myriads, of the perfect and marvellous adaptation in even the most minute details of the handiwork of the great Creator. There are no oversights or mistakes in His creations.

It is easy to trace the analogy of the first of the floral envelopes, the calyx, to a circle of leaves, the transition and resemblance being often very manifest; and again, it is not difficult to see the close analogy of the next circle of petals to the sepals of the calyx, and consequently also to leaves. The transformation of structures essentially similar into stamens, and even into pistils, is equally evident in nature; and one of the best examples of this analogy is found in the white water lily (*nymphæa odorata*), where the gradual transition can be very distinctly seen, as shown in the accompanying illustration, which represents a single member of the different circles of the flower. In this and similar flowers the circles are multiplied, and the gradation becomes more evident than in ordinary flowers where the parts are fewer and distinct. Any one can verify this statement by examining a flower of this beautiful plant, which is not uncommon in still and shallow Canadian waters. In our orchards, gardens, and fields, we also frequently meet with monstrous growths, in which the very central parts of the flower revert to their original type, and expand into green leaves, or even slender leaf-bearing branches. One of the nearest approximations to the leaf type of the pistil, is seen in the pod of the pea and other leguminous plants, in which the resemblance to a leaf folded towards and bearing buds on its edges is very apparent.

The accompanying illustration of the Spring Beauty (*Claylonia Caroliniana*), almost the only common blossom to be met with at the present time, though not a flower of the most regular type, may nevertheless serve to show clearly the several parts which have been enumerated.

The members of both calyx and corrolla are frequently coherent, forming cups or tubes of various forms with a lobed and expanded border. The

anther, and the pistil, are the only essential organs of the flower, and are sometimes the only parts present. In the flower of grasses the coverings of these essential structures are mere scales. Usually the stamens and pistil coexist in the same flower; but sometimes they are separated, one kind of flower bearing only stamens, and another only pistils. We see an example of this in maize, in some strawberries, in the hop, and other well-known plants. In some instances the two kinds of flowers are found on the same plant, and in others they grow on separate plants. In the latter case it is necessary that both kinds of plants grow near each other, or the seeds, even though the fruit may ripen, will prove infertile. Insects, hovering from plant to plant, and carrying with them the pollen of the pertilizing flowers to the stigma of the seed-bearing flowers, become the unconscious agents in impregnating the latter and rendering their seeds productive. In artificial cultivation, man sometimes controls this reproductive process in plants, and by applying the pollen of one variety to the stigma of another, obtains from the seed thus fertilized a cross or hybrid, partaking in a mixed degree of the qualities of both parents. This is called hybridization, and has been turned, both in flower and fruit culture, to very useful account. Important results have also been gained, and may yet be still further extended by its application to the cultivation of field products, and new and hardy varieties of grain may thus be obtained. Of course there is a limit to the extent to which this crossing of varieties and species can be carried. Mules, even in the vegetable kingdom, are apt to become infertile, a provision made by nature for the obvious purpose of preventing the confusion, and indeed the extinction of specific characters among plants as well as animals.

As soon as the ovule has been fertilized, the function of the flower ceases; the fertilizing agents and the floral coverings commonly perish, and the resources of the plant are concentrated in maturing the fruit, that is, in preparing the seed for its independent life. At the time of flowering the vegetation of the plant is in fullest vigour; the subsequent processes are exhausting, and the plant either dies or needs a season of rest. We should draw from this consideration one practical lesson at least, in the case of grasses, clovers, and other crops which are employed as fodder. If we wish to secure these in their very best condition, when they are most fully charged with nutritive juices, we should select for cutting, the time when they are in flower, before the blooms have begun to fade, and the seed-maturing processes, which exhaust the sap of the plant so materially, have commenced.

The endless varieties presented by the perfect fruit throughout the vegetable world, from the minute and almost naked seed, to the gigantic bread fruit, the manner in which the seed is shed, the numberless and curious contrivances for distributing and dispersing these germs of new life, the rich wealth of food thus stored up for the future plant, and ministering at the same time in nature's bountiful profusion to the wants of a higher order of beings, these and a hundred other topics must be passed by without comment, except to indicate the extent and interesting character of the boundless field of enquiry which this department of knowledge opens up to the student of nature. Nor can we allow ourselves in this place to expatiate on the wonderful beauty in form and hue of these perfect gems of the field; but we may, before concluding, just allude to a prosaic view of the subject which may suggest a new idea to some of our readers. Admitting that the lovely colours and shapes of flowers served no other purpose than mere ornament, we should not think the end attained a trivial one, or that the profusion of beauty scattered over the earth was any waste of creative power. But, we believe, there is another and a more directly practical object secured—that these very shapes and hues serve an important purpose in the economy of vegetation. We know that the agency of the sun's rays in many chemical and organic processes is a compound agency, that the different coloured rays possess different properties, and it is natural to infer that the multiform and many-hued cups and chalices into which God's hand has moulded the flowers may be exactly adapted to separate by their peculiar tints, and concentrate by their reflecting surfaces, the special rays of light and heat which the fertilizing process needs in each plant,—that the curve of the corolla, and the blue or the gold of the petals, may be essential elements of a tiny yet perfect laboratory, where light and life are working out their marvellous operations, no less than the artistic finish of a beautiful creation designed to delight the beholder and satisfy the Maker's sense of what is fair and good. This view of the subject may induce the utilitarian to regard with more complacency the beautiful flowers of the earth, while it will detract nothing from the enjoyment of the poet or artist; and like every fresh contemplation of the theme, will invest with a new interest the lesson of the great Teacher, who best knew of what he was speaking when he uttered the injunction to "consider the lilies of the field how they grow."

Profitable Farming.

To the Editor of THE CANADA FARMER:

SIR,—I have read with pleasure two articles in your issues of November and December last, on improving land by sowing turnips, and rotting them where grown. This method has been tried in England. Nesbit, in his lectures, states that some farmers had a gain of thirty shillings an acre, by rotting this crop, over the profit from feeding to sheep. But might not the same thing be done as well, and cheaper, after a somewhat different method? There is much labour in raising an acre of turnips, wages are high, and turnip-hoers scarce. The same work that would cost 10d. in England, will cost a dollar in Canada. After the roots are raised, the operations of pulling, topping, and tailing, storing them in cellars, and lastly, cutting and carrying them to the cattle, are labourious; and after all, nearly nine-tenths of the bulk are water. It is understood by sheep-feeders that 2,240 lbs. Swedish turnips make 14 lbs. of mutton. Then it is said that vegetable manure raises a crop with only half the nitrogen in it that many other manures will give. (See Johnstone's Lectures.) I have raised turnips here for about forty years, and began feeding about 100 lbs. daily, but have gradually reduced the feed to 30 lbs. daily. I believe my fields are in better condition now than they were when I first began with them. The farm was wild, broken with gullies, and swampy, when I began to chop on it. With your permission I will tell how it is now farmed. It is in eleven fields, two of these (22 acres) are in permanent pasture, the other nine fields, averaging 18 acres each, are used thus:—First field in oats, second divided as follows: two acres of potatoes, four of turnips, three of corn, sown thick for soiling, (after the corn is taken off I get a small crop of turnips,) and nine acres of peas or corn. The third field is in barley, or wheat, or both, the fourth in clover, the fifth clover, the sixth clover, the seventh and eighth pasture, and the ninth, clover, finishes the rotation. Most of this land is drained with tiles or wood, some portions of it with stones, in parallel drains at twenty-seven feet apart. The wood is sawn hemlock or cedar, the cost being about the same as that of tiles, say, 1s. 10d. the rod.

Such is my general plan. The details are as follows. To begin with the eighteen acres of oats. This field is ploughed in the fall, sown early with two-and-a-half bushels of oats, harrowed diagonally twice, with a heavy harrow, then dressed with two bushels of ashes, 75 lbs. of salt, one peck of water lime, 50 lbs. of burnt bones, and 40lbs. of sulphate of ammonia. The total cost of top-dressing is £1 2s. 0d. Afterwards harrow twice lengthwise with a common harrow. Fifty or a hundred pounds of sulphate of ammonia may be used. Under this treatment 100 or more bushels of oats may be raised to the acre. I expect seventy bushels. It is presumed there is plenty of lime in the land. If I fallow, when stumping or draining, I lay on 70 bushels of quick-lime on each acre. After that it wants 30 lbs. yearly. I keep the lime clear of yard dung and ammonia. The land should be well ploughed and subsoiled.

The second field is chiefly a hoed crop. Two acres are planted with potatoes. This portion of the land should be ploughed in the fall, twice grubbed and harrowed in the spring, then drilled. Sow the following dressing:—8 bushels of ashes, 1 barrel superphosphate of lime, 100 lbs. of salt, 100 lbs. of plaster, 50 lbs. of burnt bones, and half a bushel of water-lime. Take a round light log and drive spikes in it, and draw it twice along the drill to mix the dressing with the earth. Plant the potatoes in the proportion of about 15 bushels to the acre; cover with the double mould plough. Before they are through the ground, I harrow with light harrows, then sow 50 lbs of sulphate of ammonia, and 100 lbs. of plaster, and afterwards scuffle. They will not want much hoeing. Scuffle again and set up slightly. Two hundred or two hundred and fifty bushels will probably be the return. Four acres are devoted to turnips, which should be wrought in the same way, only the manure is spread before the drills are made. The same manure and dressing are used as for potatoes. The crop with me is not below 800 bushels, nor over 1000 bushels per acre, and at 3d. the bushel leaves but little balance. Of the remaining land, nine acres are in peas. The land is ploughed and harrowed, and two bushels of peas are sown to the acre. The ploughing is four or five inches deep, with a gang plough. Top-dress with 48 lbs. of burnt bones, 200 lbs. of salt, and 300 lbs of plaster. Harrow lightly and roll lightly. The crop may be from 30 to 50 bushels to the acre, 36 bushels being about the average. The rest of this field, amounting to three acres, is planted with corn, sown thick for soiling. This is wrought in the same manner, and dressed as for potatoes. The corn grows very thick, and eight or nine feet high. The crop is worth at least $40 an acre. My cows are fed twice daily, as much as they will eat. It is cut into lengths of five-eighths of an inch. Some turnips are given after the corn is cut.

The third crop is barley or wheat, ploughed in the fall, grubbed in the spring once or twice, and harrowed. Two bushels of barley are sown to the acre, put down with the gang plough or drill, top-dressed with two bushels ashes, 150 pounds salt, forty-eight pounds burnt bones, and one peck of water-lime. Harrow once, roll, and sow grass seeds, consisting of nine pounds red clover, three or four pounds Alsike Clover, five or six quarts of Timothy. Harrow lightly, mix 150 pounds of plaster with fifty pounds sulphate of ammonia, and sow it on the barley when two or three inches high. Cut before it is dead ripe. The crop is about fifty bushels or more per acre. The cost of plaster and sulphate of ammonia is about 16s 6d. In the fall let no beast feed on the young clover. Dress it with sixteen good loads of yard dung, and sow on the dung, after it is spread, 150 pounds plaster. The yard dung will be worth 3s 6d per load, besides spreading and carrying to the field. In spring sow two bushels ashes, forty-eight pounds of bones, 100 pounds salt, fifty pounds plaster, the cost, in all, being 13s 6d. There will be four tons (8000lb) of hay or more, as the fourth crop. After the second cutting do not let the after grass be eaten down. I cut as soon as the grass is in bloom, before seed is formed—last year I began on the 17th June. The cutting, curing, and drawing to the barn costs about 6s per ton.

The fifth crop is hay, top-dressed in spring with four bushels of ashes, eighty-four pounds, or more, burnt bones, 150 pounds salt, 300 pounds plaster, forty pounds sulphate of ammonia; 100 pounds sulphate ammonia would be better. The total cost will be £1 13s 6d per acre. The amount of hay will be about the same as last year.

The sixth crop, hay, dressed the same way; the crop will be the same. The seventh crop is pasture, dressed in spring with two bushels ashes, 100 pounds plaster, 100 pounds salt, 48 pounds burnt bones, in all amounting to 11s 9d. The eighth crop, pasture, dressed the same. There will be little gain, the rent being £1 2s, top dressing, 11s 9d, making £1 13s 9d. The improvement on a beast will not exceed £2 10s, which would be a balance of 17s 6d left, for interest, profit, and risk. Would it not be better to cut all the grass, and feed the cattle in sheds?

The ninth crop is hay, dressed in the fall or spring with eighteen loads yard manure, top-dressing with three bushels ashes, 150 pounds salt, eighty-four pounds bones, 300 pounds plaster, the total cost of top-dressing being £1 3s. The crop will be four tons, at least. Do not let the after grass be eaten off in the fall, but plough it down for oats. Top dress as before, and subsoil after the oat crop in the fall; it does not do so well in spring. The ground is full of every substance that a crop requires, and it pays its way, and leaves a balance every year. The clover will leave about four tons of roots and about a ton of leaves and stalks, besides the greater part of the manure given to the last crop of clover. I have no doubt that the enriching with clover is as good as improving with turnips, and cheaper.

Here follows an elaborate account of cost and profit, which we should have been very glad to have inserted, as it contains much valuable information, but after patient study we have not been able to reduce it into proper shape for publication. There are inaccuracies, and discrepancies, and ambiguities which pass our skill to rectify without the assistance of the writer. If he will furnish the information in a clearer manner we shall be glad to publish it. The chief feature in the report, as will be gathered from the preceding portion of the letter, is the large amount of manure which he applies, and the quantity of stock which he keeps, comprising, besides the working horses, 60 cows for dairy purposes, 7 stall-fed, 33 pigs, 75 sheep, 1 bull, and 18 young cattle. The sum of all the produce, consisting of surplus grain and hay, the sale or product, of sheep and pigs, and the cheese sold, amounted to £1611 2s 0d, or to resume the writers own account:—

Value of Produce after being manufactured	£1611	2s	0d
The improvement on 18 cattle and 620 loads manure	130	0s	0d
Total value of incomes	£1741	2s	0d
Cost of working the farm	1239	16s	0d
The balance will be	£501	6s	0d

There are many unforeseen losses, such as cattle dying, frosts and sickness, and the farmer's remuneration for his labours and risks must also be taken into account. I began this method of manuring four years ago. I have used ashes, bones and plaster, about twenty years, with recently some guano. I try to give, as near as possible, the substances contained in the ashes of the plants, less potash and more soda. My intention with so much plaster is to fix ammonia and supply lime and sulphuric acid. The hay and grain sold would feed over forty cattle, but I have not houses sufficient, although there are as many as would make a little village. As soon as cows calve, they are fed with good clover hay, cut into half-inch lengths, made damp with water, and grain broken fine strewed on the hay, with about twenty-five pounds of beets. In summer they have clover or cornstalks cut, twice daily, and when pastures are bad they are fed three times daily. I get from eight to ten tons of bones, burn them and grind them fine. The sulphate of ammonia is brought from England. I dissolved the bones for two years, but sulphuric acid got very high; in Montreal seven cents was wanted for it. I have used Snow's superphosphate, twenty barrels last year, and I have twenty barrels for this year. Vitriol can be got in England at 9s 6d per 112 pounds. For an acre of turnips or potatoes, 100 pounds burnt bones is taken, 50 pounds vitriol, 50 pounds water, and 50 pounds salt. The water is put in a pine tub with wooden hoops, add the vitriol, mix the bones, add the salt, stir; let it remain some hours. No ammonia is used except for top dressing. This is sufficient to raise twenty-five tons of turnips. The yard manure is put on the young grass, and great crops are the consequence.

JOHN ROBERTSON,
Bell's Corners, Ont.

March 18th, 1868.

War Against the Thistle.

To the Editor of THE CANADA FARMER:

SIR,—A short article, over my name, published in the first of the November numbers of 1867, seems to have given material for sharp criticism from "Publicola," on my practical way of exterminating that much dreaded enemy, the Canada Thistle. But that is what we desire; the more of it the better. The practice or theory that cannot stand the scrutiny should go down. Too many false systems and humbugs have been imposed upon the farmer already, who, in many instances, have squandered time and money to no purpose; such as cutting in the moon, and sundry other trash, which my friend has quite ably exploded.

But, has he succeeded so admirably in undermining my position? We shall see. He has not, in all his long letter, ventured to deny that frequent ploughing and cultivating, at the proper times, will destroy the existing thistle; but, on the contrary, most positively affirms it. I need but refer you to his own experience in his cultivation of the Mangold-Wurtzel patch, which he says was as perfect a bed of thistles as Canada can produce, which he exterminated in a single season; and the instance of the young farmer's potato patch, which he gives, are arguments most conclusive, and ought to convince the most sceptical of the success attending the method set forth in my letter.

He begins by counting the cost attending my method, which sums up, according to his rendering, to $8 per acre; and in the very next breath, rules me out of existence, on account, as he says, of fallowing being the most successful means of propagating the evil, by preparing the soil for the most favourable reception of the flying seed.

Perhaps he forgets, or does not know, that every farmer in this part of the country, at least, makes it a point to have a summer fallow every year, which he ploughs at least twice, and often three and four times, besides the cultivating and harrowing—not one or no thistles. Then, as "Publicola" would say, why not "strain a point," and plough and cultivate at the proper times to kill the thistle? So you may see, sir, that his objection, financially, just amounts to nothing.

And the point he labours to make on the adaptation of the fallow to receiving the floating seed, I shall neither affirm nor deny. It is enough to know that the fallow, worked as I have directed, is no better adapted for its reception than *any* ordinary fallow ground. Neither was I arguing a system of warfare upon an imaginary foe, but against one really existing. Our Legislature has introduced a system of prevention, which I think both practicable and sensible. Would that it were better observed. So, with this at my back, I think myself safe at this point.

The circumstance which he mentions of the slip planted in the spring, producing five and a half lbs. roots in the fall, with enough still remaining in the ground to send forth sixty plants in the spring, is quite sufficient to show that the increase from the root is much more to be dreaded than that from the seed; and it is reasonable to presume that not one of a million of seeds ever produces a plant. Those who have taken any notice of the spreading of the Canada Thistle, must know that it is effected principally by patches, extending their borders yearly, and also by careless cultivation, changing bits of roots to places previously free from the thistle. And thus, in a single year, hundreds of plants will mark another centre of action; to send forth its invading army, subduing the country to itself.

I have kept fields in meadow for a length of time, and have mowed twice in a season, though perhaps not sufficiently "straining a point," and in some instances thought the thistle subdued, but when ploughing the field some would make their appearance again. By following the plan which I recommended in my letter of November last, I have destroyed every thistle in three twelve acre fields, taken in rotation, in three successive years, my friend's "seed bed" to the contrary notwithstanding. I have tried a sod field since, but did not wholly succeed, as the cultivation was necessarily imperfect. I gave it, however, a double portion of clover seed, hoping to keep it at bay until I can give it another trial.

I have no doubt but the gentleman's system may be a successful one; and my own experience, as well as the many honorable testimonials which I could produce, must settle the fact in my mind at least, that the method I have set forth is both practicable and successful. I can only hope that every farmer who is infested with this common enemy may adopt some true system, and that a universal and unceasing war may be waged until this scourge shall be banished from our soil.

PETER SHISLER.

Sandy Land.

To the Editor of THE CANADA FARMER:

SIR,—Although farming is not my calling, I have been a subscriber to your journal since its first issue, and always have taken a deep interest in agricultural matters. It therefore affords me much pleasure to observe the improved system of agriculture pursued here, as well as the increasing intelligence of the farmers generally, and for these your valuable paper may justly claim some credit, for I find it constantly read by the leading farmers.

There has been a large influx of new blood to this county in the case of persons (generally of an intelligent and respectable class) who were compelled to leave their homesteads in older and wealthy townships, in consequence of the wheat failure, and seek a new home in our colder but more productive region. This influx indicates that the locality of Barrie and its back country has lost its ill repute for everything that was poor and miserable—a character, I dare say, you are aware it had about ten years ago, when it also had an unenviable notoriety for "sand." Yet it concerning a piece of this self-same sand that I particularly to consult you. I have a piece (four acres) of land or "sand" which I would prove for pasture, and do something to it if possible.

I thought of doing so about three months ago, I could have procured a good quantity of stable manure. This I would have top-dressed it with, and perhaps have ploughed down some of it, and sown clover. However, it is too late to collect manure now, and I have been advised to sow plaster (gypsum) over it on the sod. Do you think it would be of much use, and what is its *modus operandi*? I see Professor Liebig's theory is, that it fixes the ammonia of the atmosphere. If so, it would act equally on sand or clay soils.

There was a gentleman in this town some years ago, from a part of France where agriculture is made more of a science than it is here, and he held a theory and had a receipt principally composed of phosphate or super-phosphate of lime, ammonia, &c., and by which he said wheat or any kind of crops could be profitably grown on sand which had been deprived of every particle of organic matter by burning.

A CONSTANT READER.

Barrie.

NOTE BY ED. C. F.—We would recommend you to apply as much manure as you can possibly get to the land, and plant it with potatoes. Next spring plough in more manure, and sow clover thickly. After taking off a crop or two of this, plough it under. Raise a crop of grain, if you wish, and lay it down to pasture. Such land as yours requires the addition of materials for plant food, and this is best done by barn-yard manure, and especially by ploughing under green crops, such as clover. By repeatedly following this plan, the land may be made rich and productive. We believe the plaster will do more to stimulate the growth of a growing crop than permanently add to the productive resources of the soil. The Frenchman's experiment on a small scale has repeatedly been tried, and only proves that if you supply to sand or burnt clay, or any other pulverized medium, the materials of plant food, vegetation will take place in such soil.

Stock Department.

"Young Conqueror."

BEST DRAUGHT STALLION, OF ANY AGE, AT THE LAST PROVINCIAL EXHIBITION.

THE accompanying illustration is taken from a photograph of "Young Conqueror," the imported stallion owned by Mr. Simon Beattie, which obtained the diploma as the best draught stallion of any age, at the Provincial Exhibition of 1867, at Kingston. "Young Conqueror" was purchased from Alex. Gilrath, Croy, near Glasgow, and imported to Canada last fall by Mr. Simon Beattie, the present owner. He is a dark bay horse, five years old this spring. From his pedigree and performance, it will be seen he stands unrivalled or unsurpassed by any other draught horse in Canada, and was pronounced by good judges one of the best horses in either Scotland or England, last summer. Farmers should avail themselves of this valuable opportunity, and encourage such animals, and the enterprise of the proprietors in introducing them amongst us. This horse gained prizes—first at the show of the Royal Agricultural Society of England, at Plymouth, as a two year old in 1865; first prize at Peterboro'; first prize at Huntingdon; first prize at Ely, £30; prize from the Society of Strathendusk and Killearn, near Glasgow, last spring; the second prize at the show of the Highland and Agricultural Society, at Glasgow, last summer, where twenty first-prize horses showed in his class, the best in Scotland and England. Since his arrival in this country, he has gained, besides the diploma at Kingston, the first prize at the fall show at Markham, and the first prize this spring at Markham. "Young Conqueror" is no relation to any of the draught horses lately imported into Canada. This valuable horse is now standing, we are informed, in Markham. It is almost superfluous to add that we believe him to be a most important addition to our Canadian stock.

"YOUNG CONQUEROR," THE PROPERTY OF MR. SIMON BEATTIE.

Animal Life.

IN a series of articles just completed, the CANADA FARMER has briefly laid before its readers the leading facts and principles, so far as they are known, in regard to plant life, or vegetable physiology. It is now proposed to offer a similar sketch of the various vital processes exhibited in the animal kingdom. Nothing but the merest outline of these deeply interesting and important subjects can, of course, be given in a periodical of this description; and it may be objected that such an elementary form of instruction will only encumber these pages with commonplace truisms, and statements of facts with which every one now-a-days is acquainted. But although to you, intelligent and well-informed Reader, these facts and principles may be as familiar as household words, are they so among the larger class of working men and farmers? If you think so, put some elementary question in physiology to your neighbour, or ask the man who takes care of your horses what effect bleeding will be likely to produce on the system, or how the air becomes vitiated by breathing, and see what answer you will get. To those engaged in the care of stock, some little knowledge of the laws which regulate animal life can scarcely fail to be of service; and yet, with few exceptions, their ignorance on these points is as general as it is profound. A sort of "rule of Thumb" serves their purpose in ordinary cases, but it often leads them into grave error, and in any unusual emergency leaves them helpless. We hope that the proposed series of articles may, in some measure at least, rectify this blind, unreasoning practice.

Let us notice, in the outset, what are the elementary constituents of animal bodies. In plants we found that the essential elements were *carbon*, *oxygen*, and *hydrogen*. In addition to these a fourth element, *nitrogen*, enters into the composition of animal tissues. This element, it is true, occurs in many vegetable compounds, (necessarily so to render an exclusively vegetable diet fit nutriment for animals;) but it is always in those which approach the most nearly to animal products. These are the principal constituents; but as in plants, so in different animal substances, other elements are also found in anbordinate proportion, as, for instance, iron in the blood. These four, however, are present in nearly all, and constitute the largest part of all animal tissues.

The organized material from which all the rest of the animal fabric is derived, which perpetually builds it up and repairs its waste, is the blood, emphatically called "the life." It will be convenient, then, to begin with some account of this fluid.

If we examine a drop of fresh blood beneath the microscope, we shall find that it consists of a colourless fluid, in which are floating a number of bodies of a circular shape, known as "blood corpuscles." These are of two kinds, white and red, the latter being by far the most numerous. The colourless liquid is called the "*liquor sanguinis*," or fluid of the blood, and consists of a yellowish viscid liquid, named *serum*, holding in solution a substance known by the name of *fibrin*. It is composed principally of water, and about eight per cent. of *albumen*, a substance with which we are all familiar in the white of an egg. One of its most characteristic properties is that of being coagulated or rendered solid by heat, or by the action of an acid. It is this property which causes the "setting" of the white of an egg on boiling. It is this also which renders the serum of blood a useful clarifier in certain circumstances.

Fibrin cannot be distinguished chemically from albumen; but it possesses the property of spontaneous coagulation under certain conditions. Its congealing or forming a clot when it escapes from its ordinary channels, and especially when exposed to the air, is one most important natural means of stopping the effusion of blood. It is readily organized, and exuding from inflamed or wounded surfaces, is the prime agent in the processes of growth and healing.

When fresh blood is allowed to stand in any vessel for about ten minutes, a yellowish liquid is observed to separate, and the red matter gradually loses its fluidity and shrinks in volume, forming a "clot." The reason of this is, that the fibrin, on being taken from the body and exposed to the air, coagulates, and entangles, as it were, the blood corpuscles with it, and shrinking after becoming solid, diminishes the volume of the clot, and separates from the serum. If coagulation is delayed by cold or other causes, the red corpuscles, being heaviest, slowly sink; and when the fibrin begins to solidify a colourless layer is formed at the top. This, which is known as the *buffy coat*, is formed when the blood of persons sufferieg from inflammatory disease is allowed to coagulate, and is seen in the blood of horses even in a healthy condition.

The red corpuscles of the blood are flattened disks of a circular form in most mammalia, but in birds, reptiles, and fishes, oval. They are smallest in mammals, measuring in man $\frac{1}{3200}$ of an inch in diameter, and in the ox $\frac{1}{3200}$ of an inch. They are largest in reptiles, being $\frac{1}{1200}$ by $\frac{1}{2800}$ of an inch in the frog, $\frac{1}{250}$ of an inch in the Proteus. In the oval corpuscles of reptiles there is a central nucleus, but this does not appear to exist in the fully developed red corpuscles of mammalia, though their bioconcave shape gives to them in certain lights the appearance of possessing such a central opaque body. They are composed of two substances, of which one, *globulin*, contains sulphur, and the other, *hæmatin*, contains iron. It is the hæmatin that gives to blood its peculiar red colour.

The white corpuscles, before mentioned, are much less numerous than the red, and are less regular in shape. They appear to be in an imperfect state, a state of transition, and indeed may be regarded as immature red corpuscles.

In vertebrata the colour of the blood which flows from an artery is bright red; of that which flows from a vein, dark red. But in invertebrate animals it is almost always colourless, and in those exceptions in which the blood is red, as in some worms, the colour is in the liquor sanguinis, and not in the corpuscles. We almost unavoidably use terms, as for example, artery and vein, which perhaps the beginner does not understand, but we shall come to the explanation of them a little further on, in describing the circulation of the blood.

The following tables of the composition of the blood are given by Dr. Kirkes:

Average proportions of the principal constituents of the blood in 1000 parts.

Water	784
Red corpuscles	131
Albumen or Serum	70
Saline matters	6.03
Fatty and other matters	6.77
Fibrin	2.2

Elementary composition of the dried blood of the Ox:—

Carbon	57.9 per cent.
Hydrogen	7.1 "
Nitrogen	17.4 "
Oxygen	19.2 "
Ashes	4.4 "

And this is so nearly the composition of flesh, that we may express it by the same chemical formula. The chief office of the blood is to repair the waste of the tissues. Among its subordinate uses may be mentioned that of carrying oxygen, derived from the air, to all parts of the body, and of removing effete matter from the various tissues to situations where it can be thrown off.

Classification of Stallions.

To the Editor of the CANADA FARMER.

SIR,—Will you allow me a little space in your valuable paper for a few suggestions on the classification of stallions at the Provincial Exhibition, and also at the County and Township Shows.

Under the present plan, Stallions are divided into four classes, viz.:—Thorough-bred, Road or Carriage, General Purpose, and Heavy Draught. As regards Thorough-bred and Heavy Draught, I would make no alteration, but I would divide the Road or Carriage class into two, making firstly Road Stallions showing speed (though not to the exclusion of other points), suitable for getting general light driving horses. Secondly,—Carriage or Coach Stallions, horses of good size, bone, appearance and action, suitable for getting horses such as ought to be used in gentlemen's carriages and other purposes where a certain amount of weight is required, with action. I would make it compulsory that these two classes should be shown in harness, so that the public can really see for themselves, and not be imposed upon by all sorts of circus performances that should count for nothing. These four classes would then include every kind of horse wanted either for business or pleasure.

What is called "the General Purpose Stallion," I would drive out of Canada, root and branch; he is doing more harm to our breed of horses than can be estimated, and the reason is plain. Of all kinds of mongrels there is none greater than "the General Purpose Stallion;" he is a combination of all known breeds; and you see shown in this class mongrel Clydes, mongrel Coach Horses, and a mixture of everything. Consequently the Judges get confused, and take refuge in the biggest of the lot, and give him first prize.

Unfortunately, these horses are more numerous than any other class, and their services are to be had cheap, which is balm to the pocket of many Canadian farmers. But in this, as in many other cases, cheapness is poor economy.

SPECTATOR.

☞ HARDWOOD ASHES, rubbed in dry on the back of sheep or cattle, is an excellent exterminator of lice and vermin. Mix the same with oats or feed, and it is an excellent remedy for worms in colts or horses.

The *Farmer* (Scottish) says that a sow of the Essex breed, belonging to W. J. Beadel, Esq., who occupies Springfield Hall Farm, Chelmsford, had the extraordinary number of twenty-three young ones at a litter, twenty-one of which were born alive.

FASTENINGS FOR OX-BOWS.—Every one who has yoked a pair of oxen has experienced the difficulty of holding upone end of a heavy yoke while inserting the bow and keying it in. The labor is much lessened by attaching a spring snap or catch to the bow,

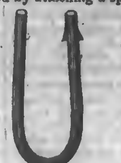


FIG. 1.

FIG. 2.

so that when simply thrust through the hole in the yoke (fig. 1) it fastens itself without any other attention. This is effected by inserting a large unannealed wire, so that it shall act on each side in a manner similar to the catch of an umbrella. A small iron plate with a hole in it as large as the bow, should be secured to the top of the yoke for these springs to rest upon.

Another mode of fastening the bow without employing a spring, is shown in fig. 2. A common butt or small door hinge is used for this purpose, and is screwed on to the top of the yoke, so that its movable part may cover about one-fourth or one-fifth of the hole. A notch is cut into the bow to correspond with this projecting edge of the hinge. On inserting the bow, this half of the hinge is thrust upwards, but drops and secures it as soon as it reaches the notch.

DISEASE AMONG DAIRY COWS.—The old disease, known as the "lung complaint" (*pleuro pneumonia*), which destroyed a large number of milch cows in the metropolis and suburbs, about ten or twelve years ago, has re-appeared in many of the cowsheds on the southern side of the Thames, and the dairymen have sustained very considerale loss by this epidemic.—*Pall Mall Gazette.*

Rural Architecture.

Useful Contrivances in Rural Economy.

WE have collected together, from various quarters, but chiefly from the *Illustrated Annual Register of Rural Affairs*, a number of useful hints on various matters, which, though not strictly pertaining to rural architecture, are yet closely allied to it, and will come better under that head than in any other department. Where not otherwise specified, it is to be understood that the useful little manual already named is credited for the following articles and illustrations:

FRAMING TO SECURE WIDE FLOORS IN BARNS.

WIDE floors, unobstructed by posts, are often a great convenience in barns, and as it is desirable to know a good way to frame a bent so as to dispense with posts and make it a self-supporting truss through

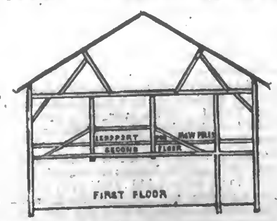


FIG. 1.

a part of its length, we have had the accompanying fig. 1, engraved. It represents a truss-bent in the barn of Rev. David R. Waller, of Bloomsbury, Pa., which supports the second floor of the barn, on one side, and a hay mow upon the other. The barn has two stories and a basement, and all the hay and grain is drawn in upon the second floor, over a bridge, from an approach walled and banked up. This truss is of simple construction, philosophically braced and entirely secure. The size of the timbers would vary with the width of the barn and the extent to which it is self-supporting, as well as with the weight it is expected to sustain.—*Country Gentleman.*

IRON GATE LATCH.—A correspondent in Talbot county, Md., sends the following description of an iron gate latch (fig. 2), which he has found cannot be opened by mischievous mules or horses. The straight portion is made by bending a rod double and welding the ends to a sharp point, which is driven into the gate post D. The latch C is of iron, and plays in the space between the sides of this straight piece. The cross-pin at B prevents the

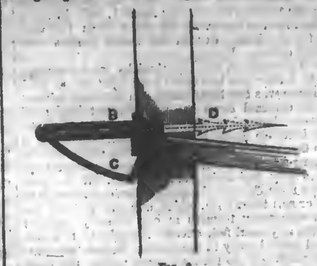


FIG. 2.

latch from flying entirely out, when the gate is shut forcibly. The gate is held shut by the pressure of the latch against cross-bar A, which may be a projection of the horizontal part of the gate, or a bar of oak, nailed or screwed to the stile.

SELF-SHUTTING GATE.—Various contrivances have been resorted to for causing gates to shut of their own accord. For small or light gates we have never found anything equal to the spring represented in the accompanying figure. One, which has been in use over ten years, appears to be as good as on the day it was put on. The different parts are shown more distinctly in fig. 4, where *a* represents a spring which is screwed on to the gate in a horizontal position as is shown in fig. 3, having a small wheel at its outer end, in which the bent lever *b* moves in opening and shutting. In the outer end of this lever a small chain is hooked, connecting with the gate. When opened, the spring is bent as shown by the dotted line. In constructing this contrivance, the great point is to form the curve in the lever, in such a manner that there shall be a continued and uniform pressure upon the spring, at whatever distance the gate is opened. The form represented will nearly accomplish this purpose, its length being about equal to the distance between the post and small wheel on the end of the spring. This contrivance was patented many years ago and retailed at $1.50, the spring and lever being simply made of steel red. The patent has probably long since expired.

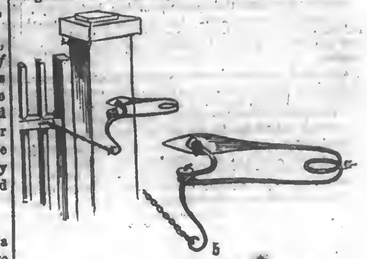


FIG. 3. FIG. 4.

The Dairy.

Dairy Farm, in Chester County, Pennsylvania.

ROBERT began farming four years ago, having about 100 acres of cleared land, for which he purchased twelve cows and two heifers. He engaged a farmer, who continued in charge two years, and made 1432 lbs. butter the first, and 1500 lbs. the second year.

This was principally from pasture alone, no provision having been made, by growing early rye, corn for fodder, or any other green food, to keep up a plentiful supply, either early or late in the season, when pasture is short, and it is so indispensable, in order to keep up the condition of the cows and their milk.

The third year the proprietor undertook the management himself, and made 2878 lbs. butter, and during the fourth year, ending April 1, 1867, he made 4055 lbs., having increased his stock from fourteen up to twenty head—five of the latter heifers with their first calves. He says:—

Now, I suppose, it will be asked by what management the butter was increased from 1432 lbs. to 4055 lbs. There was but little change in the stock, almost all of the original cows having been retained, and the increase being but three cows and three heifers; but the increase in the butter was from twice and a half to three times the quantity. The difference in the management was this: my original farmer kept the cows only, as I have before stated, on the pasture; the farm then had nothing grown expressly to fodder or soil them with, which was and is now the custom with many farmers in our country; neither was there any meal fed, except it might be to a cow that had calved early in the spring, before the pasture was sufficient to turn out upon; also, the cows were permitted to remain out, exposed to cold, wet storms (when they should have been stabled and kept warm and dry), thus early in the season checking the flow of milk, which is afterwards difficult to restore.

Early in the season the young grass, when cows are first turned out to pasture, is watery, and tends to make the cows scour very much; and although it will in that state increase the flow of milk, and also the quantity of butter, yet it will be at the expense of the condition of the cow, reducing her in flesh, and telling upon her during the whole season. At this time I consider it important that a cow should be fed with ship stuff or bran and cob meal, mixed, night and morning. This not only assists in preventing scouring, but by keeping up the condition of the stock, increases the quantity of the butter to a very considerable extent. My opinion is, that meal fed at this time pays better, certainly as well as at any other time during the season, not excepting midwinter.

I am well satisfied that the condition of the cow, in order to obtain from her a full yield, or one that will be profitable, must at all times be well looked to. She must be well wintered and fed, so that when she comes out of the barn-yard in the spring, after having calved, she is in good flesh, showing her keep and the care taken of her, and not like what is too much the custom of the country, viz., dry cows, wintered on straw, no shelter except the lee side of a barn-yard until the calf is dropped, when it is too late for the poor-in-flesh cow to yield her full capacity.

A cow should at all times, when milking, be fully supplied with meal; not stimulated to excess, however, for that would certainly produce reaction afterwards; but she must have a full and plentiful supply at all times of good food and water. For that purpose I have grown early rye to begin with in the early season, before the grass is sufficient to turn out on; then after harvest, during the dry weather, when the pasturage becomes short, Hungarian grass, to be followed with corn sowed in drills for fodder, which cut morning and evening, and fed to the stock whilst milking, fills them twice a day, and, with the pasture, makes up all that is required. During the last season, whilst it was necessary to soil with Hungarian grass and corn for fodder, we have also fed two quarts of ship stuff each night and morning, as we feel satisfied that, although the Hungarian grass and green corn will keep up the yield of milk, yet they will not alone make as much butter as a full supply of pasture or the natural grasses.

I look upon a cow as similar to a steam boiler; no matter how good they may be, unless the boiler is well supplied with water and good fuel, also well attended to, the supply of steam will be short, or it will be in proportion to the fuel and attention. So also with the cow; no matter how good she may be, if she is not well and plentifully fed and cared for, her product will be shortened.

Another very important matter with cows is that they should be protected from storms and bad weather. They should be fed and kept under shelter when the nights are wet and inclement; this more particularly in the early season, when the cow is fresh and in full milk; one exposure to a cold, wet night, has frequently reduced milk one-half. Also in the fall, when the nights become frosty, never let them remain out; be particular to stable them; and in the morning never turn them out on the pasture until the frost is melted off by the sun, as nothing, perhaps, dries a cow or reduces her milk more than eating grass with the frost on it. To many of these requirements the generality of farmers pay no attention whatever. In the early season, as soon as there is any pasture whatever, the cow is turned out of the barn-yard, to eat what she may find, and to remain day and night until the winter comes; there is also nothing grown or fed to eke out the scanty supply of pasturage that almost invariably occurs at some time in each season.—*Practical Farmer.*

How to Mak Gude Buter.

To the Editur of THE KANADY FARMER:

MAISTER EDITUR,—Havin been readin in your invaluable paper (from all sektions of the Kontry but this) how tha mak buter an greese, I wad jist gio u a bit inklin o tha way tha mak buter in our parts, an then you can gess abot the greese. In the fust place, tha don't stabel their kows, but feed em all winter on straw, an u ma expekt in tho spring like this, tha com out sae pur, that unles the sun is sinin vera brite, it will tak too of em to cast a shadoo. Tha are also covered with so long an shaggy hares, that when u are mylkin the pale is half full of hares. Aftr mylkin a boy an a dorg is sent wi em to the sumrfolor to pastr till evnin, when the boy an tho dorg is cent aftr em agin, an u ma xpekt tha com hom kanterin. Tha ar non so restles tha will not stand to be mylkd, for which tha git a gude hamrin. Tha are now klosd in the yard till mornin. Mean whyle, the mylk is removd to the darey, where it is sltrd thre a kulndr strainr, to tak out som of the hares. The dary is sumtims a gudo one, but in ten kases out of one it is a pur konstructd bildin, with shelf abov shelf, an plenty of holes for vntilaton—the upr story bein genraly occpyd by the poltry. Imeditly B.hind is the syne stye, in ordr to be konvenent for the sour milk; or it may be a log bildin, chinkd an plastrd, with a hole 5 feet deep inside. On this groun floor, tho mylk dishes is plasd; as thore is no vntilaton here, the mylk molds B-4 it sours. Aftr remainin in this state a konsidrabel tim, the kream is skimd in-2 a pork barrl, or othr vesel big onuf to hold it till a rany dae coms, when all the men is in. This tim havin arivd, the kream is put in-2 a churn, an worked for abot an our, without synes of buter. Hot water is now added in konsidrabel quantitys, when tho buter is on hand ito awa. It is now removd in-2 a tub or other vesel for the purpos, in ordr to get some of the butermylk out, after which it is saltd an mad in-2 roles for markt. A boy is now sent aftr the old mare, to tak it 2 the store, and bein redy 1 or 2 rols is put in eithr end of a grain bag, an put on the hoss, an the boy dispatchd with the instruktions to get hiest markt price, as it is new. Previous to the boy's takin it, I was requested to taste it, and give my opinion on it. This I done after some reluktanc, an said it was vera white and dry-lokin, but it was new. This was not near as great a eulogym as was expektet. Howsomever tha said it was mposible to mak yaller buter this tim o the yere. I axed em if tha ever red in the KANADY FARMUR how to mak buter. Tha said tha never took it, but Sam Miser says that Joe Novel says it is not xactly the thing, as it rekomends a nice ary dary with clean dishes, and tho kows well atendid-2. Bside the kows are to be well stabld, an kept in gude pastre. This a puer man can't allways afford, besids we allways get the hiest price for our buter here. My attension was arested by a nok at the doro, which provd to be a halker wanting to sell some mylk dishes. I now took my leave satisfyed with this style of kontry buter.

THERESA HUBB.

Wordsville.

Veterinary Department.

Curb in Horses

THE affection known as curb is one of almost every-day occurrence, and it appears as an enlargement situated upon the lower and back part of the hock joint. This enlargement is the result of a sprain of a ligament that extends from near the point of the hock to the outer side of the small splint bone. The name applied to this ligament is the *calcaneo-cuboid*, or superior straight ligament of the hock. From the position of this ligament, and also from the strain put upon it, especially in hocks of a curby formation, it is very liable to be injured. Curb appears in many instances so very suddenly, that the common expression used regarding its appearance is, that the horse has "sprung a curb." When it first appears it is usually somewhat soft, and very hot and tender; the least pressure of the finger at once makes the horse jerk his leg upwards. It is very easily detected, especially if a side view of the leg is taken. In that position, a very slight curb can be readily noticed, and frequently there is lameness present, which in many cases is very severe, whilst in others it is only slight. A curb is a great eyesore, but it is rare that lameness from it proves of a permanent character, though frequently a callous enlargement will remain through life.

The causes of curb are various, as violent and sudden strains in galloping or leaping, or in being forcibly backed when attached to a heavily-laden waggon. It is also frequently produced by travelling in deep snow. This is a common cause in young unshod horses of three and four years old, who are often driven considerable distances without shoes; the hoof is worn down, and the horse slips at every step, thus throwing great stress upon that particular part. There are certain forms of limbs very liable to curb, as narrow hocks, and those in which the point of the hock (*os calcis*) is not well developed. Where this conformation is decided, the least violent exertion is very apt to produce a curb. This affection generally appears in young horses; it is rare that a horse of seven or eight years throws out a curb, without having shown signs of it in younger years.

The treatment of curb is generally attended with success. The horse should have rest, and a shoe applied with a high heel. By so doing the strain is taken off the hock to a great extent. Either cold or hot applications may be used with advantage, according to the state and extent of the injury. When the parts are much swollen and tender we prefer hot applications, as fomentations of hot water, afterwards applying flannel bandages, and a mild camphorated liniment. When the heat and swelling are removed, blisters are sometimes useful, and either the biniodide of mercury or cantharides have very good effect. At one time the firing iron was very often resorted to in the treatment of curb; but we are of opinion that it is only in exceptional cases where such a severe remedy is required. In slight cases, cold water and refrigerant applications will often succeed in allaying the tenderness, even without laying the horse off his usual work.

Veterinary Queries.

To the Editor of THE CANADA FARMER:

SIR,—I wish you, or some of your numerous correspondents, would answer the question, "What is the reason we have so many ringboned, spavined, and unshapely horses in this country?" If there is any remedy for the prevention of this evil, it is high time that farmers and others were made acquainted with it, that our stock of horses, instead of becoming poorer, may be improved.

Also, answer "What is the best method of shoeing a horse who is turned out in the front feet, to prevent it from interfering?"

Also, answer "What breed of horses is best adapted for agricultural purposes in Canada?" We have various breeds, as Clydes, Bloods, &c., all possessing different qualities. Would you recommend crossing the breeds, or keeping every kind distinct by themselves?

AN OLD CARTER.

Ringbone and other diseases of the osseous system, in many instances, can be traced to some hereditary predisposition. Diseased and worthless animals, when unfit for ordinary work, are frequently kept for breeding purposes, and the progeny commonly inherit those diseases which may have existed either in the sire or dam. We are of opinion that if greater care were bestowed in the selection of good, sound and vigorous animals for breeding, there would be fewer ringboned and spaviced animals to be seen.

To prevent interfering in a horse who is turned out in the front feet, the shoe should be applied to fit closely on the inside, and the nails applied around the toe and to the outside. In some instances a small piece of leather placed betwixt the sole and the shoe, and allowed to project outwards, has a very good effect in preventing interfering.

The last question is open to considerable discussion amongst practical and experienced men. At present we decline offering any opinion. Let our correspondents speak for themselves.

LOSS OF MANE AND TAIL.—The following is very useful in cases where there is a falling out of the hair of the mane and tail, viz.:—Glycerine, two ozs., sulphur, one oz., acetate of lead, two drachms, water, eight ounces. To be well mixed, and applied by means of a sponge.

SWOLLEN ABDOMEN.—A subscriber writes:—"I have a valuable mare now in foal to a blood horse, and about three weeks from foaling time she has become very much swollen all under her abdomen, and forward as far as her fore legs. I would not feel uneasy about her, only she had a foal three years ago, had the same swelling, and lost one teat in consequence. Can anything be done for her?"

Swelling under the abdomen is a common occurrence in mares previous to foaling, and is seldom productive of any harm. It is generally advisable, however, to give the mare gentle walking exercise daily, and every second night a teaspoonful of nitrate of potash, which may either be dissolved in water or given in a bran mash. This should be continued until four or five doses are given. She should also be sparingly fed for eight or ten days before foaling.

Poultry Yard.

Characteristics of various Breeds of Poultry.

A PAPER READ BEFORE THE ONTARIO POULTRY ASSOCIATION, BY THE PRESIDENT, A. M'CLEAN HOWARD, ESQ.

As President of the Poultry Association, I have often been asked the question, which are the best varieties of fowls to keep? My answer has been, it depends altogether upon what you more particularly want them for, and this must always be kept in mind in making a selection.

I will now give briefly the leading characteristics of the various kinds, for the information of intending breeders, leaving them to select accordingly. My remarks will be, as nearly as possible, the result of my own experience.

I will begin with the Cochins, as they generally head the list. They certainly are the largest, if not the best. I have not found them, under all circumstances, a profitable kind to keep for general purposes. They are not the best layers, nor do they lay an egg at all in proportion to their size. They are large feeders, poor foragers, inveterate sitters, but careless and clumsy with their eggs or chickens. They are very hardy, and when young, good for winter layers. The hens should not be kept over two years, as they then become lazy and good for nothing, and I pity the person who has to eat them at that age. In fact, I do not consider them first-rate for the table at any age, from their small proportion of breast meat. They are extremely docile, and from their kind and amiable disposition, are great favourites with some. They are very patient under confinement, and to parties having a small run or wishing to keep them out of their gardens, I consider them invaluable. I may say that I have found their chickens very easy to raise, and if hatched early attain a large size. I recollect hatching a brood of thirteen buff Cochins on St. Valentine's Day, a number of years ago, and raised nearly all of them. I kept them in a vacant horse-stall in my stable. I think, as a general rule, the coloured varieties are larger than the white, though Col. Hassard had some at the fall show which I think quite equalled their buff relatives.

I shall now proceed to the Brahma Pootra, and I think if I were keeping a large fowl, I should prefer them to the Cochins, as they are better foragers, not so indolent, lay well in winter, if kept in a tolerably warm place, are quite equal in size, and the chickens are very easy to raise. They are not the best summer layers, often wanting to sit all the time, and subject to the same drawback in that respect as the Cochins. They are not quite so patient in confinement as the Cochins. The light Brahmas especially, from their extreme depth of colour, their rich creamy white, and light pencilled hackle, are a particularly handsome bird.

The Dorkings next claim our attention. I cannot speak with so much positiveness in regard to them, never having had any. They are considered, *par excellence*, the English table fowl, though I believe it is questionable how far some of the French breeds have usurped their place in that respect. I think, in point of profit, the coloured Dorkings surpass their white cousins, being larger and more vigorous birds, though, to my taste, not to be compared with the white in beauty. I have always considered the distinctive features between Dorking and Barndoor fowls not sufficiently defined for them ever to become a fancy breed. I believe their chickens are rather difficult to raise. They are fair mothers, and tolerably good layers.

I will now proceed to the Spanish, a breed which, to judge from the large numbers of entries at our Poultry Shows, appear to be rather popular. There is no doubt that, as layers, they may be considered first-rate, laying large white-shelled eggs. I have found their chickens very easy to raise, the young cocks being exceedingly precocious. They are non-incubators, requiring other hens to hatch their eggs. They have, however, one very serious drawback; they are very apt to get frost-bitten, from the great size of their comb and wattles. The cold soon checks their laying. They also moult badly. Upon the whole, I think them better suited to a climate where the mercury does not get below zero. I am sure the owners of Spanish must feel the truth of my remarks, from the result of their experience, after the severe frost we had during the past winter. In fact, several have complained to me of the effect it had on their birds. There is a breed of White Spanish, having the same characteristics as the black, though I do not think they are as beautiful, as the contrast of the white face is not obtained in the white variety. It may not be out of place, as showing the length of time eggs will hatch, after the removal of the cock bird, to state that, a number of years ago, I had a very superior pair of Black Spanish; the cock bird having unfortunately died, I was desirous of saving all the eggs I could, and set eleven that were laid after the cock died. The first five hatched, the remainder were bad, but none of the chickens were strong.

The Games come next on our list, and I think that, take them all in all, nothing can surpass them. They are good layers of rich eggs, very hardy, which I think is a most important advantage, and from their great variety and extreme beauty, are general favorites. They are small feeders, and are, when in good health, always fit for the table, without extra feeding. The hens cannot be surpassed as sitters and mothers. Many think that, from their extreme pugnacity, they would be difficult to rear; but with ordinary care all that may be avoided; in fact, it is astonishing what order a good Game cock will keep in his yard. All the young stags are in dread of him, and in his presence are on their good behaviour.

I now come to the Polands. A great deal may be said in their favor; they are extremely hardy, and from the absence of comb are not so likely to be affected by the frost. They are good layers, but better in summer than winter, and are non-incubators. They are an extremely fancy bird, and like all the Spangled varieties, require great care in the breeding. I do not consider them so good for the farm as some other varieties, as they are more liable to be carried off by hawks, as well as to get their top-knots draggled and spoiled in the manure heaps of the barn-yard.

The different varieties of Hamburghs are special favorites of mine, as I consider that, in point of beauty and when well bred, they cannot be excelled. As layers they cannot be surpassed by any other variety. They do not lay quite so large an egg as the Spanish or Dorking, though I think the Spangled and Black are an exception; but they are more continuous layers of most delicious eggs. They are non-incubators, and persons keeping them will not be troubled with chickens unless they get other hens to hatch their eggs. They are rather impatient of confinement, the pencilled ones particularly. But to persons having a good-sized grass run, they are invaluable, as they nearly keep themselves. They are an extremely noisy bird, either singing or cackling all the time.

I am not aware that the Malays require any very particular description. I do not consider them at all a desirable breed to have in the poultry yard, as from their cruel and vindictive disposition, with their great size and strength, they are very apt to prove fatal in their encounters with smaller birds. I should recommend them chiefly as a cross, to get size and weight, not from any merit of their own.

The different varieties of French fowls, which have come into favor lately, require some notice. The principal varieties are the La Flèche, Houdan, and Crève Cœur, specimens of which were exhibited at the last fall show. Of the three kinds, the Houdan seems to find most favor in England, though I think I would prefer the La Flèche, as I think the damp climate of the Old Country, which is so much against them there, would not affect them here. My friend, Mr. Wood, a member of the Association, imported some from Paris a year or two ago, and I believe was very much pleased with them, having found them to be most excellent layers.

There are some few rules that are applicable to all varieties of fowls, without the observance of which it would be unfair to expect any useful results. If many eggs are expected, no hens should be kept, as a rule, after the second year, as after that the fecundity of the hen diminishes considerably. Hens require a certain amount of warmth in the winter, but not stove heat, which is bad.

I have erected a glass shed or house on the south point of my fowl-house, out of some old sashes, where the hens can come out and enjoy the fresh earth without getting in the snow. They have as much buckwheat and screenings as they can eat, plenty of warm straw, green food in the shape of cabbage, an occasional liver, cool ashes to bask and dust in, with a good supply of fresh water. Attention to these particulars has insured me a plentiful supply of fresh eggs during all the past winter.

Correspondence.

Township Societies.

To the Editor of THE CANADA FARMER:

SIR,—Having felt somewhat interested in the war of words that has been going on for some time past between the advocates of Township and County Societies, and some ideas occurring to my mind in connection therewith that appear to have been overlooked by our zealous friends, I venture to trespass on your valuable space for the purpose of making a few remarks on the subject. No reasonable person will for a moment pretend to deny that the country has been greatly benefited by our Agricultural Societies. That they have greatly contributed to our present prosperity as an agricultural country, must be evident to every one. They have awakened a spirit of enquiry and emulation in the breast of thousands, whose minds have become more enlightened as to the nature of their calling, and who have thus been stirred up to greater diligence in the prosecution of their business. They have done very much to elevate the calling of the farming community, not only in their own estimation, but also in the estimation of others, who were wont to look on the life of the farmer as one of constant toil and drudgery. They too have seen what wonders may be accomplished even in farming operations by the application of a limited amount of skill and capital, combined with industry and perseverance. Our agricultural exhibitions have enkindled in the hearts of many a feeling of honest pride and heartfelt satisfaction with their position in life, which should be felt by all who thus see gathered together the fruits of their luxurious fields, their richly laden orchards and their growing flocks and herds, while they have the happy assurance that with every returning season their substance is increasing, and that, with the blessing of Providence, they are above want and free from the fear of the fluctuations of merchandize or the embarrassments of trade. Doubtless but few will be inclined to dispute the fact of our having derived very great benefits from the existence of many of our Agricultural Societies, both Township and County. But while we admit all this, we may at the same time very properly enquire if all the good has been accomplished that might have been done. The above are, no doubt, very good reasons for keeping up our exhibitions to a certain extent. But is there not a possibility of carrying the thing too far? It is evident that a spirit of jealousy exists between the County and Township Societies; in some localities they are in direct opposition to each other. Now what is the cause of this, and where is the remedy for the evil? The cause of this opposition, it is clearly evident, arises from the holding of so many exhibitions; it is admitted by all that there are far too many. And if so, much valuable time and means are yearly expended that could be put to other purposes. It is doubtless a great mistake to suppose that all the good has been done that could be accomplished, when the annual revenue is given away by awarding prizes at shows. Much good might still be accomplished by introducing new kinds of seed, and thorough-bred stock, and encouraging a better system of farming; and here is a vast field of usefulness open to the Township Societies, which they can enter and work without coming in contact with the County Societies. In many parts of the country one show in a County would be quite sufficient. Especially is this the case in many of the newer sections of the country, where many small and weak societies have frittered away their means in the getting up of a few small paltry shows, where, perhaps, little or nothing could be shown worth the looking at; and after a few years the novelty of the thing has passed away, the people have become dissatisfied, and cease to take any interest in the affairs of the Society. To remedy this evil, our County friends proposed to swallow up a number of their weaker neighbours, or starve them gradually to death by curtailing the Government grant. This I believe to be a wrong policy. Would it not be better to assist and encourage the formation of Township Societies, and induce them to occupy a different field of operations from the County Societies? Let them expend their means in introducing new varieties of seeds and improved stock. The introduction of improved stock is evidently the proper work for a Township Agricultural Society, as it is not every neighbourhood that can boast of a private individual of sufficient means and liberality to engage in this expensive business. And again, many are willing to incur the first cost of purchasing a good animal, but they think it useless to commence improving unless they see their way clear to keep up their standard of excellence, and they are aware that to do so requires frequent renewals at a great expense. But when an Agricultural Society engages in this business, and purchases a number of animals, they have a great advantage over a private individual in their not being under the necessity of sacrificing an expensive animal after two or three years' service; by moving them from place to place as often as required, their services are retained by the Society for a number of years. We see among merchants, manufacturers, and in almost every other kind of business, the great advantage of combining the skill and capital of numbers in order to carry on more successfully the business in which they may be engaged. And why should farmers be indifferent to the advantage of acting on the same principle in the carrying on of their operations? In our Township Societies we have the machinery all complete, and in no possible way could it be used to better advantage than in improving the live stock in a township. In conclusion allow me to add, that much as the wealth and prosperity of any country may depend on its commerce and manufactures, still we must look to agriculture as the true source and foundation of all national progress.

JAMES LOVELL.

Brooke, Lambton Co.

Queries concerning the Agricultural Bill.

To the Editor of THE CANADA FARMER:

SIR,—May I ask to have a few questions answered through your columns? They refer to "An Act for the Encouragement of Agriculture, Horticulture, Arts, and Manufactures," passed by the Legislative Assembly of Ontario, with the name of the Hon. John Carling attached to it.

As a rule, I think that Acts of Parliament are worded very carefully, so that it is next to impossible for any one, with average intelligence, to mistake the meaning intended to be conveyed; but, in the Act referred to, I fear there is room at least for a doubt as to its intention, so far as regards Township Societies. For instance, Sec. 42 says that "A Township Agricultural Society may be organized in each Township in Ontario, in which there was not one already organized at the date of the passing of this Act, or in any two or more such Townships together, wherever a sufficient number of persons, not less than fifty, become members by signing a declaration," &c., &c. Now, I do not think it is clearly expressed by the above quotation, whether this section has any reference to Township Societies which were organized before the date of the passing of this Act; for the words "in which there was not one already organized at the date of the passing of this Act," may be intended to prevent a Society being organized at the same time, or in opposition to such existing Society.

I also wish to know if it is necessary in future that *all* Societies, whether old or new, shall have at least fifty members?

Section 46, Proviso No. 1, says:—"But no grant shall be made unless One Hundred Dollars be first subscribed and paid to the Treasurer of the County Society, and to the Treasurers of the Township Societies within its limits."

I should like to know if the Commissioner of Agriculture means that each Treasurer of the Township Societies must receive one hundred dollars, to entitle the County Society to receive the Government Grant, or does he mean that all the Treasurers of the Township Societies must receive, at least, one hundred dollars in the aggregate?

From Section 48, sub-section 3, it would appear that only new Members, having paid the Membership Subscription before the 1st of January, shall have the right of voting at the election of the office-bearers, and upon business applying solely to such year, as "all persons whose names are recorded on the books of any such Society, as legal members thereof, under this Act, shall have the right of voting on all *other questions* submitted to such annual meetings."

The above, in part recited section, does not tell me what I desire to know, which is—if it is necessary that any person, to be entitled to a vote at the annual meeting, must pay his subscription before the 1st of January, and if all members must so pay their subscriptions, or only new ones.

You will very much oblige me by answering these questions, for in a legal matter of this kind there should be no guess-work. I doubt not but there are some other backwoods Secretaries who will be glad to get a comprehensible version of this part of the Act.

A SECRETARY.

NOTE BY ED. C. F.—By the date of a private note accompanying the above communication, it would appear as though it had been sent some time since, but it has only now come into our hands.

In reference to the first enquiry, it is quite evident, and indeed is clearly expressed in sub-section 1, "That there shall not be more than one such Society in any Township." The section plainly declares that, if no Society already exists, one may be organized, under certain conditions. If such Society has already been established, it is recognized, and while it remains, another is inadmissible. With regard to the number of members mentioned in the conditions, it is meant, that *at the first organization* there must be at least fifty members. The provision does not affect the number of members of existing Societies, or of newly-formed ones subsequent to their organization.

In reference to Section 46, the meaning is—that the aggregate amount subscribed to the County and Township Societies must be at least $100, and not that any one Society must have that amount.

The interpretation of sub-section 3, in Section 48, seems also perfectly plain—namely, that to entitle any person, whether new member or old, to vote in the election of office-bearers, for the year next ensuing—that is to vote prospectively—he must pay his subscription in advance; but on all other matters, affecting the business of the past year, any member, legally recorded on the books, is entitled to a vote. No distinction is made in regard to old or new members.

We trust we have been sufficiently explicit to enable our correspondent, and others in like difficulties, to comprehend the scope of the provisions in question.

While on this subject, we take the opportunity of rectifying the number of the chapter which appears on the title page of most copies of the Act. This is set down as chapter twenty-three, but in consequence of a different arrangement having being made since the Act was printed, it now stands as chapter twenty-nine.

A Dilemma

To the Editor of THE CANADA FARMER:

SIR,—I am very much interested in the question of killing the Canada thistle. A recent writer on the subject, in your journal, has gone fully into the question; yet I think it is very hard for any man to come to a definite conclusion, when there is such flat contradiction. He says that summer fallowing is the best mode of propagating the Canada thistle. Now, if we turn to the CANADA FARMER of November 1st, 1866, page 322, we find an article, taken from the *Western Rural*, in which the writer says he had purchased twenty-seven acres of land, and twenty acres of it was in wheat, and nine loads of it was nearly all thistles. He summer fallowed it next year, and sowed it in wheat, and when he harvested it, you could bind all the thistles from the twenty acres in one bundle. Now, I should like to know what "Publicola" would make of that. The fact is, I have a farm of fifty acres rented, and it is entirely polluted with thistles and wild oats. I intended to summer fallow ten acres of it this summer; but since reading "Publicola's" letter, I have been puzzled what to do with it. I should be glad if he or any other correspondent would tell me what is the best thing I can do with it.

I would just remark that the people of Elma are getting more alarmed about these wild oats than they are about the thistles, and if any of your readers could give me, through the CANADA FARMER, any practicable way of killing these oats, they would be conferring a great favor on the people of Elma.

I would also state that I got one bushel of Mr. Membery's wheat, last spring, and I sowed it on about three-quarters of an acre of new land, where there had been potatoes twice. I ploughed and harrowed it as carefully as I could. It grew well, but did not produce an extra heavy crop. I had one hundred and fifty-one sheaves, and it turned out thirteen bushels of wheat. This is certainly the best wheat I have ever seen. I do not know where it came from, but a storekeeper in Listowel got a barrel of wheat two years ago, and sold it for ten cents a pound. They call it California wheat, but I could see no difference in the wheat.

EDWARD HAMMOND.

NOTE BY ED. C. F.—The best method of exterminating the thistle and other weeds is a question respecting which thoroughly practical men have given certainly very opposite opinions, probably in part from experimenting under different circumstances. We cannot presume to speak authoritatively on the subject, but as a general rule we believe that *clean seed* and *deep* and *thorough cultivation* will supplant any weed with a more useful crop. We have in our own experience succeeded in nearly eradicating the Canada thistle by summer fallowing, in a field so over-grown with the pest that much of the previous crop had not been harvested. In another year, had we remained on the farm, we believe the field would have been perfectly free. We, however, commenced the plan of smothering out the thistle with clover, thickly sown, as recommended by "Publicola."

Oil-Cake—Hedges—Winter Wheat.

To the Editor of THE CANADA FARMER:

SIR,—In a recent number of the CANADA FARMER you stated that you believed oil-cake is manufactured only in Montreal. I wish to inform you that T. J. Cottle, Esq., has been running his oil mill in Woodstock all winter, manufacturing a fine quality of raw and boiled oil, and, of course, oil-cake as well, which he sells at $30 per ton. Mr. Cottle has a very neat establishment—which includes a scutching mill. The press is a powerful hydraulic, and all the apparatus very complete.

I have been informed that there is a similar establishment at Berlin, I think, where the cake is sold at $25 per ton. This surely must be cheaper feed than either oats or peas at present prices.

Your Dunville correspondent, writing in the No. for April 1st, in reference to hedges, evidently is unacquainted with the true buckthorn, when he speaks of it resembling the hawthorn in blossom, only the berry being much larger. It must be the thorn that is common all over the country, and which has been tried as a hedge plant by a great many, and in some instances done well. The buckthorn is hardy and free from enemies—either insects or animals—but it lacks the prickles spoken of by your correspondent, and must rely principally on the strength of its branches for resistance, hence it requires longer time to make a fence than more prickly plants. I have hedges six or seven years old, and which will resist sheep only. Two years more, I think, will make it a tolerable fence. It inclines to thicken on the top, and all the pruning I can give it will not force the under shoots to strengthen. I planted thirty rods of the "hedge locust" last spring, but can only say of it that the foliage is beautiful in the summer season, and that it is as prickly as the osage orange. It is said that it will make an excellent fence in four years. So it was said of the white willow, but plenty of my neighbors have it three years old, and it is not yet strong enough to stand alone. It would not pay an agent to solicit orders for white willow cuttings here just now.

Any one wishing an ornamental as well as useful hedge, should plant the berberry. It has no faults that I am aware of, unless it is that it causes a blight to rest on grain crops in its immediate vicinity.

The hawthorn does not thrive well here. Mice are particularly fond of it. It is usually black with the bark louse, and does not thicken at the bottom as it does in England.

I have not seen, for many years at least, the winter wheat look as healthy and as little winter-killed as it is this spring. This has been a hard week for it, and may injure it yet.

R.W.S.

Woodstock, April 10th, 1868.

WHITE MELILOT.—Mr. John Manning enquires whether the seed of *Melilotus Alba*, recommended by Mr. Kirkwood, can be procured in Canada, &c. We do not suppose it is kept by Canadian Seedsmen, but they could, no doubt, procure it for Mr. Manning from England, with instructions as to the quantity of seed required per acre.

TARPAULIN FOR STACKS.—Can any of our readers reply to the following enquiry by a "Subscriber" from Goderich? "Will you inform me, through the medium of your paper, as to where tarpaulin stack cloths are manufactured, and also the name and address of the manufacturers. In the part of England where I lived, the covering used for large haystacks, during the building, was universally the large sail of a vessel. Would, therefore, thick sail-cloth be as advantageous as regards cost and durability?"

The Canada Farmer.

TORONTO, CANADA, MAY 15, 1868.

The Season.

WE are glad to be able to put it on record, that the favourable indications referred to in our article on "The Month," in last issue, still continue, and that, so far, the prospects of the Canadian farmer for the present year are such as to render all grumbling and misgiving utterly inexcusable. Rarely has there been in this country so unvarying and protracted a term of fine weather. Hence spring work has been pushed along with unusual celerity, and a large breadth of land put into crop. The weather has verged somewhat to the extreme of dryness, yet on the whole the seed has been well got in, and the fields that are up, have a very healthy look. Fall wheat never promised better; indeed we hear of very few cases of winter killing, and the only matter of regret is that the experience of the past few years has dictated caution and moderation in reference to this crop until it has come to be grown but sparingly. With so auspicious a season, it is a pity the area of land thus occupied is not multiplied a hundred-fold. Meadows look well, but would be no worse of more rain. With pleasant weather for work, the air has continued somewhat chilly, so as to retard the fruit buds. This, however, is no misfortune, as late blossoms are more likely to ripen than early ones.

Book Notices.

THE CANADA SHORT HORN HERD BOOK.—This goodly volume of 507 pages will supply a want long felt by Canadian stock-breeders. In 1854 a manuscript register of Shorn Horn Cattle was established by the Board of Agriculture, which has been of much service. Something more permanent and more generally accessible was needed, however, and is now furnished in the work under notice, which has been arranged and compiled after the model of the English and American Short Horn Herd Books, and is, we hope, only the first of a long series of similar publications, in which the *noblesse* of Canadian cattle will have their origin and histories perpetuated.

The rule on which pedigrees have been admitted into the volume, is the same as that adopted in connection with the English Herd Book, viz.: four crosses by Herd Book bulls. Every rule is liable to exception, and there are a few duly noticed, in the Canada as in the English Herd Book. It may be of service to some of our readers, if we quote from the preface the following table giving the amount of pure blood shown by any certain number of crosses.

"Suppose the original dam to be an animal without any Short Horn blood, and that she and her female descendants are bred to thorough-bred Short Horn bulls, the result of the successive crosses in the amount of pure blood obtained, will then be as follows:

1st cross gives	50	per cent	pure blood.
2nd "	75	"	"
3rd "	87.50	"	"
4th "	93.75	"	"
5th "	96.87	"	"
6th "	98.43	"	"
7th "	99.21	"	"
8th "	99.60	"	"
9th "	99.80	"	"
10th "	99.90	"	"
11th "	99.95	"	"
12th "	99.97½	"	"

"The result of the fourth cross thus shows 6.25 per cent., or 1-16th of the old blood of the original dam remaining, while the seventh cross exhibits about 1-100th, and the tenth about 1-1000th of the old blood."

Considering how easy it now is for farmers to get hold of females with a dash of Short Horn blood in them to begin with, it will be seen, from the above table, that there is very little excuse for breeding native cattle, and nothing but want of the spirit of improvement to prevent every farm-yard from having superior animals and a constantly advancing herd in it.

The Canada Herd Book is embellished with a number of lithographic portraits of distinguished Short Horn cattle, "the Duke of Northumberland," perhaps the best bull of the breed, take him for all in all, leading the way, and eighteen other noted bulls and cows following,—among them, of course, the Hon. D. Christie's justly celebrated Athelstane-ford females.

Of course it cannot be expected that we should go into a critical examination of such a volume. It would require a large amount of research to do that. We need only say of it further, that it bears marks of careful labour, and must have cost the compiler, Mr. Hugh Thomson, a large amount of painstaking and wearisome attention; that the typographical execution is very creditable to the firm (W. C. Chewett & Co.) by whom it was printed, and that our copy at least is well bound and lettered, so as to be quite ornamental on the book-shelf. We notice that the list of subscribers at the close of the volume is not very numerous, but we doubt not, that now the volume is out, it will command a wide sale. Every intelligent, progressive farmer in the land should have a copy.

AMERICAN CATTLE: THEIR HISTORY, BREEDING AND MANAGEMENT.—This is a book of some 500 pages, from the pen of Lewis F. Allen, of Black Rock, near Buffalo, N.Y., late President of the New York Agri-

cultural Society, Editor American Short Horn Herd Book, and author of some useful hand-books of rural industry. The object of the work, as stated by the author in his preface, "is not only to give a historical account of the Bovine race, to suggest to our farmers and cattle-breeders the best methods of their production and management, but to exalt and ennoble its pursuit to the dignity to which it is entitled in the various departments of American agriculture." From the little examination we have been able to give it, we cannot recommend it too highly. Every farmer should have a library, and this book well deserves a place in it. It appears to be rich in practical information about the breeding and care of cattle, and at the close gives the pith of "Lowson's Modern Farmer," one of the best works ever published on the diseases of cattle, and the best remedies for them.

TRANSACTIONS OF THE ILLINOIS STATE HORTICULTURAL SOCIETY, FOR 1867, pp. 283.

FIRST ANNUAL REPORT ON THE NOXIOUS INSECTS OF THE STATE OF ILLINOIS, pp. 103.

The two publications above named came to hand just as we were going to press with this number of the CANADA FARMER. We must therefore content ourselves with acknowledging the receipt of them, and postpone further notice until our next issue.

Act Respecting Cruelty to Animals.

WE have received a copy of a Bill introduced into the House of Commons by the Premier, Sir J. A. Macdonald, the humane object of which is to prevent cruelty to animals, which passed its second reading on the 17th ult., and will, we presume, shortly become law. It is needless to argue the necessity for such a Bill, while there are in the world so many brutes in human form, who have no flesh in their obdurate hearts. Generally it is of no use to reason with such persons, as they are impervious to everything but legal suasion. Perhaps the penalties of the Act in question lean to the side of mercy. A fine of not less than one, nor more than ten dollars, with costs, is lenient enough surely. The Act also gives considerable scope for cruelty in permitting sheep, lambs, calves or pigs, to be bound for conveyance to market a distance not exceeding fifteen miles from the owner's house or premises, such animals not to remain so bound longer than half an hour after their arrival at market. We are unable to see any necessity for binding at all. It is harsh treatment, that may easily be rendered unnecessary by having a crate, small frame, or light wiring upon the vehicle used for transportation. Fifteen miles with a heavy load and slow team implies four hours of painful endurance for the poor dumb creatures so bound. When a butcher goes out to collect animals for the slaughter, the time may be much longer, and the distance actually travelled much farther, because of the circuitous route taken in order to call here and there, though by the direct road it may not be more than fifteen miles from the owner's premises to market. We throughly approve of the principle and aim of the Bill, though we incline to think a little more stringency would improve it. While making a law on such a subject, it is desirable that there should be no wide meshes or large loop-holes through which barbarians may make their escape from the rod of justice.

PROTECTION OF SMALL BIRDS.—The Legislature of Quebec have passed a law for the protection of insectivorous birds, making it unlawful to destroy or capture any wild birds except birds of prey, wild pigeons, rice birds, kingfishers, crows and ravens, between the 1st of March and the 1st of August. For the true interest of agriculture, some similar provision should have been incorporated with the Game Law recently enacted in this province.

The New Patent Bill.

THE new Bill for granting patents is now issued, and provides, among other new features, that the Commissioner of Patents is to have a seal, and that he may mark out such rules and regulations and forms as are necessary. He is to report annually to Parliament.

The chief features of the Bill are as follows:—It provides that any person having been a resident of Canada for at least one year before his application, and having discovered what was not known or used by others before his invention thereof, and not being at the time of his application in public use or on sale in Canada, with his consent or allowance as the discoverer thereof, may, on application, obtain letters patent therefor. The patent may be granted to any person to whom the inventor has assigned or bequeathed. The petitioner for a patent is required to select his domicile at some known and specified place in Canada. Instead of the period of fourteen years in the present law, patents are to issue for five years, and be renewable twice, making the whole period fifteen years. The Government may use the patentee's invention for a reasonable compensation. Patents are to be null within three years, unless the manufacture of the invention shall have been commenced by the patentee in Canada. Patents in all the Provinces shall remain in force, as if this Act had not been passed. The fees are greatly increased under the Bill. At present they are $20 for fourteen years. By this Bill they are proposed to be $20 for each period of five years, or $60 in all. There is also an increase in the other fees charged. Intending applicant may file a caveat in order to cover an application for an invention which he has not yet perfected, which will be kept secret. The Commissioner has the power to repress a patent in certain cases. The applicant must be fully informed of the reasons therefor, and he may appeal to the Governor in Council. All documents are to be open to inspection by the public in the Patent Office. These are in the main the new features of the Bill. It is certainly an improvement on the present. Formerly, only British subjects resident in Canada could obtain a patent. Now, any inventor resident a year in Canada may do so. There is no clause extending patents in Nova Scotia or New Brunswick to the other Provinces, or the Dominion generally.

Dogs

SOCIETY is forbearing to a fault in reference to some of the burdens it carries, and endures without sign of complaint pretty severe exactions. We referred lately to the cost of the dog luxury (?) in a single Canadian township, which strikingly illustrated the truth of this observation, though it bore chiefly upon the amount of loss arising from sheep worrying. But the board of the creatures themselves, when they lead a harmless, innocent life, is no small item of national expenditure.

The March report of the United States Commissioner of Agriculture brings out some facts bearing on both these points. In 1866 *five hundred thousand sheep*, so far as reports were received, were killed by dogs in the United States, and their value was *two millions of dollars*. The number injured, so far as learned, was three hundred thousand, and the loss is estimated at six hundred thousand dollars. On the other point the Commissioner says:

"The cost of keeping dogs, most of them utterly worthless, when calculated for the whole country, assumes startling proportions. The estimate made in the report of 1863, of ten dollars per annum, or less than one cent per meal, cannot be considered extravagant, in view of prices paid for boarding dogs, the cost of keeping large numbers of them in cities, and their almost exclusive consumption of meat. As to their numbers, it is believed by many that they will nearly average one to each family, or about seven millions in the United States. In cities and towns that average would not be reached, while many a pack of hounds and assemblage of curs of low degree might be found in the ownership of single families. Ohio, with a half million of families, is supposed by many to have a half million of dogs; there are, however, little more than one-third of that number found on the assessor's books. It may be asserted, in view of all the data obtained, as a low estimate, that there are five millions of dogs in the United States, and that their subsistence involves an expenditure of fifty millions of dollars."

SALE OF PRIZE DURHAM BULL.—We learn that Mr. John Snell, of Edmonton, has sold to Mr. Wm. Collam, of Wilmot, the two-year old Short Horn Bull, "Loudon Duke," by Duke of Marlborough, 3866; dam, Mayflower 3rd by Airdrie, 2748. Loudon Duke was bred by Abraham Renick, Clark Co., Kentucky, and was winner of the first prize as a Yearling Bull at the last Provincial Fair.

Agricultural Intelligence.

Deep Cultivation at Yester

A FEW weeks ago the Marquis of Tweeddale, being Chairman of the Committee on Steam Cultivation, wrote a letter to the Directors of the Highland Society, offering to place a field at their disposal for the purpose of exhibiting the comparative merits of steam and horse-power in breaking up land which had hitherto not been ploughed above seven or eight inches deep. The Directors communicated with the various owners of steam ploughs; but these gentlemen, without exception, declined to send their machines. It then occurred to Lord Tweeddale that he might have in the same field a comparative trial of his ploughs, drawn by two, three, or four horses, with a view of testing the best way of applying horse-power, and also of the expense. The trial came off upon the 5th instant, when sixteen pairs of horses were divided as follows—one four-horse plough six ploughs with three horses, and five with two horses. The horses, as every one knows who has seen Lord Tweeddale's stock, are uncommonly well selected. The ploughs are well adapted for deep ploughing, and the men employed thoroughly acquainted with the work to be done. It would, therefore, be impossible to find horse-power more intelligently applied than at Yester. The field referred to is about a mile to the south-west of the village of Gifford, and is well adapted for a trial of ploughs, being comparatively free from stones, and there can be no doubt that the powerful steam apparatus of Mr. Fowler or others] would have broken it up effectively. It would, however, be very difficult to surpass the work made by the Tweeddale ploughs. The well-known Tweeddale four-horse plough, which has so long been worked at Yester, was at work nearest the road, turning a furrow fully fourteen inches deep, by fourteen inches wide, and the horses working easily.

The three horses yoked abreast were also working easily, turning a furrow of thirteen inches; while in the two-horse ploughs the horses seemed rather heavily strained. They turned a furrow twelve inches deep by twelve inches wide.

The field was visited during the day by several landlords and a number of practical farmers, who generally agreed that the three-horse yoke was the most economical of the three modes of applying the power.

Lord Tweeddale visited the field during the day, and all present were delighted to see the highly esteemed landlord and veteran agriculturist in such excellent health and spirits. A committee of farmers, having been asked by his lordship to inspect the field and the work done, drew up a report of a very satisfactory nature, in which they say:—

"An exact account of the time occupied in ploughing the field of twenty-five Imperial acres has been kept by Lord Tweeddale's overseer, and it is equivalent to fifty-four days of a pair of horses working eight hours a day. The Marquis of Tweeddale calculated that the actual cost of a pair of horses, including the ploughman's wages, is one shilling per hour. The expense of ploughing an imperial acre—thirteen inches deep—is therefore 17s 3d. We have to record our entire satisfaction with the work done, and of the great improvement effected by this deep stirring of the soil. The ploughs are exceedingly well adapted for the purpose, their peculiar construction allowing a deep furrow to be turned without bringing too great a quantity of the subsoil to the surface."—*Bell's Weekly Messenger.*

Preserved Meat from Australia.

WE are glad to draw attention to a new process which has been brought under our notice, and which we believe is about to be tried in South Australia. This process is the one which has been patented in New South Wales by Mr. Mort, who appears to be acting for the inventor, Mr. A. Morris. This gentleman, we find, issued a circular about twelve months ago, in which he stated that an experiment was about to be made for the preservation of meat by freezing without the use of ice, and without the meat being touched by any substance except the iron tank containing it. "Should this experiment," said the circular, "be successful, an economical plan will have been devised, by which the superabundant meat of the Australian Colonies can be introduced into the European and Asiatic markets in the same condition, both in regard to freshness and quality, as it is daily supplied in our own local markets." Ships can be fitted with the apparatus, by which, without injury to their capacity for carrying any other cargo, they can convey all over the world fresh meat for sale, or for the use of their crews and passengers during the voyages from and back to our ports, and without any risk of the meat spoiling." In order to show how this great advantage was to be gained, the circular proceeded to state that a model of the apparatus would be exhibited, containing a large quantity of fresh animal food,—meat, fish, poultry, &c., &c.,—and that the experiment would be submitted to the severest possible test. The investigation took place, and the result now is that we have a process in full operation by which meat—many hundred tons in one apparatus—can be easily frozen and kept in a state of refrigeration without losing its flavour and without becoming putrescent when thawed, as meat does when kept in ice, or frozen in the open air. In fact, meat preserved by this process, after having been kept for months, has been eaten at the table of the Governor of New South Wales, as well as in many private houses, without any one being able to distinguish it from similar food just obtained from the butcher's shop. This invention appears to be an application of Faraday's discovery of the liquefaction of certain gases by pressure, and the capacity of such gases for the absorption of heat on their release from liquefaction." The inventor, at all events, is convinced of the practicability of supplying the English market with fresh meat at a price far below the present rate, and with a view to this he has already left Sydney for the mother-country by the mail steamer. Mr. Mort has already patented the new process in the Australian Colonies, and additional protection is about to be obtained in France and England.—*Adelaide Observer.*

Ploughing Match.

A PLOUGHING match, under the auspices of the Township of Hamilton Agricultural Society, came off on the Farm of Mr. Jos. Hore, Camborne, on Wednesday, the 15th of April. The weather was very favourable, and a large number of spectators were present. There were twenty-two ploughs entered, all of which ploughed. The Judges were Messrs. W. Underwood, J. Mitchell, and — Russell. The following was their award.

CLASS NO. I.

1st prize,	Wm. Robinson	$10 00
2nd "	James Crawford	8 00
3rd "	James Raby	6 00
4th "	M. Smith	4 00
5th "	R. Defoe	2 00

CLASS NO. II.

1st prize,	William Mulholland, from Haldimand Township, a Spring Pump, presented by Jno. Lawless, of Baltimore, valued at	10 00
2nd "	Nicholas Doidge	8 00
3rd "	A. Ferguson	6 00
4th "	Thos. Aitchison	4 00

CLASS NO. III.

Boys under Eighteen Years of Age.

1st prize,	William Wright	8 00
2nd "	William Isaac	6 00
3rd "	James Davidson, a pair of Whippletrees and a Neck Yoke, presented by Geo. Hoog, Esq., of Baltimore, valued at	5 00
4th "	Samuel Berry, a pair of Bridles, presented by Mr. Thomas Haigh, of Baltimore, valued at	4 00

Agricultural Societies.

ADDINGTON.—In accordance with the new Agricultural Act, a public meeting, called by E. J. Hooper, M.P.P., was held at Harrowsmith on the 27th April, inst., to organize an Electoral Division Agricultural Society for Addington. The attendance was good, for the busy season of the year; about eighty persons were present.

It was Resolved, to adopt the By-Laws and Rules of the late Addington County Society.

The following gentlemen were elected as the office bearers for the present year, namely:—J. D. Ham, of Newburgh, President; Schuylor Shibley, of Portland, first vice do.; Wm. Laurence, of Loborough, second vice do.; J. B. Aylsworth, of Newburgh, Secretary-Treasurer. Directors for Portland, Samuel Stuart and Geo. Denison; for Loborough, Wm. Colwell and James Lahey; for Newburgh, R. F. Hope; for Camden, Miles Stormes and John Wager; for Sheffield, James Aylsworth and John Stuart. As Auditors, Douglas Hooper, of Newburgh, and Joseph Watson, of Harrowsmith.

Resolved—That a copy of the CANADA FARMER be furnished to each member who pays a subscription of one dollar and twenty-five cents.

NORTH RIDING OF OXFORD.—President, John Craig; vice do., John Dunlop and James Lockhart; Sec.-Treas., R. W. Sawtell. Directors.—Messrs. Parker, Buitch, Pepper, Towars, Ross, Williamson and Watt.

Nova Scotia Agricultural Exhibition

OUR friends in Nova Scotia are making preparations for a great Agricultural and Industrial Exhibition, to be held in the City of Halifax, during the second week in October, from the 5th to the 10th, inclusive. We have received copies of the prize list, which is very complete, and on a liberal scale, including all the departments and classes usually embraced in our own exhibitions. The Horticultural programme is especially full, and we notice again the energy and liberality of the Fruit Growers' Association, who have voted the sum of $200 towards the prize list in this department. Prizes are offered, not for the best winter, fall, cooking, or dessert apples, as with us, but for the best dozen of special varieties. The same classification is adopted with pears and grapes, and is, we think, a commendable feature in the arrangement.

The competition is restricted to Nova Scotia, except in the article of models for vessels, in which they challenge the world. We very cordially wish success to the undertaking, and we trust that the results will be so encouraging as to lead to an annual exhibition, and an extension of the competition in all the departments to the sister Provinces, and the United States.

☞ A Massachusetts farmer has paid $300 for a barrel of the Rose potatoes for seed. D. S. Henron, of Utica, N. Y., has sold a New Jersey farmer 125 bushels for $180 per bushel—or $10,000 for the lot.

☞ Strawberries, blackberries, and almost every kind of garden vegetables have commenced arriving in Chicago, from the Gulf of Mexico regions, *via* the Mobile and Ohio and the Illinois Central Railroads.

PRODUCTION OF BEETROOT SUGAR IN FRANCE.—The last return of the manufacture of beetroot sugar gives the total quantity produced, from the opening of the season on the 1st September down to the end of February, at 206,691 tons, or 2621 tons more than in the corresponding period of the previous year. The stock on hand on the 1st September being included, the quantity disposable was 228,261 tons. Of that total, 184,731 tons were taken for exportation, consumption, or distilleries, and the remainder was in the manufactories, either in a finished or unfinished state. The entrepots received, with the balance of last year's stock, 175,632 tons, and delivered 127,361. There consequently remained on hand over 48,000 tons.

CLIFFORD.—The inhabitants of Clifford have agreed for the construction of a steam grist mill. It is to be in running order by the first of November next. There is some talk of erecting a carding and woollen factory the ensuing summer.

MAPLE SUGAR.—According to the last United States census, about forty million pounds are made in the whole country, and one and a half million gallons of syrup. The New England States, New York, Michigan and Ohio, make the most. Nearly one-half of the whole quantity is made in New York and Vermont. The value of this production at the present market prices is not far from eight millions of dollars. There is no good reason why more system should not be introduced into the industry, and the business be generally extended. Why should not better varieties of the sugar maple be sought out and multiplied by nurserymen, and orchards be planted on a large scale? There is no danger of a glut in the sugar market, and if the product were multiplied ten-fold, the price would be still remunerative. The tree will flourish in elevated positions, and on rocky land quite too rough for tillage, and its cultivation requires very little care.—*American Agriculturist.*

EMIGRANTS FOR CANADA.—The *Pall Mall Gazette*, of the 16th April, says:—"About 150 emigrants from the East-end, including men, women, and children, will sail this morning from the Thames, in the screw steamer 'St. Lawrence,' bound for Quebec. The men, for the most part, are blacksmiths, fitters, sawyers and labourers, in the prime of life, with families of various ages. They go out to Canada at the sole expense of the East-end Emigration Committee; and they have been selected by a committee of gentlemen connected with the locality, including Mr Samuda, M.P.; Mr. Green, shipbuilder; Mr. Carrie, Mr. C. H. Wigram, Mr. Buttevant, and the Rev. J. F. Kitto, incumbent of St. Matthias, Poplar, among others. Towards this object Lord Overstone has handed over £800, the balance of the Herbert Emigration Relief Fund, set on foot for a kindred purpose some years ago, and the Mansion House Relief Committe recently contributed about £200, the balance remaining in their hands on closing their accounts. None of the emigrants who go out by the 'St. Lawrence' have been in the receipt of parochial relief at any time during the prevalent distress. On arriving at Quebec they will be put into communication with Mr. Stafford, the Government emigration agent there, who will make arrangements for sending them to parts of the country were labour is most in request. Each of them is furnished with a plentiful supply of suitable clothing, with provisions and books for the voyage, and, besides the assistance which the Government agent at Quebec is expected to render in forwarding them to their destination, a little allowance in money will be made to each family on arriving there."

FISH CULTURE IN ENGLAND.—The experiments successfully carried out at Huningue of course attracted the attention of every person connected with the great fisheries throughout Europe. The British proprietors and lessees of river fisheries at once began to make their own experiments, the largest and best known of which is that of Stormontfield, on the banks of the Tay. The method adopted is to capture the gravid fish, procure the ova by manipulation, and artificially impregnate by the addition of the milt, as they do in the French establishment. It is scarcely necessary to describe the egg-boxes in which the hatching process is carried on. They may be seen in the shop windows of several of the sporting newspapers—indeed, the artificial process of rearing fish from the ova has become quite a fashionable amusement, and is now familiar to most readers. Upwards of a million fish have already been passed on to the Tay, and a rise in the rental of the fishery of the river of ten per cent. has been the result. All the fish so reared were marked, and at an early period of the experiment it was found that forty fish out of every thousand had been so marked. One tenth of the fish taken in the Tay have been, it is asserted on the best authority, artificially reared at Stormontfield. Mr. Buest ("Peter of the Pools"), who manages the establishment, gives a very clear idea of the gain to the river by the artificial process of raising. He states that of the thirty thousand ova produced by the salmon in a natural state only five fish survive fit for the table. The same number of ova hatched in the establishment, and reared carefully in the pools, turns out eight hundred fish, and this number is a very low estimate.

The Vegetable Garden

To the Editor of THE CANADA FARMER:

SIR,—In making a few brief hints on the selection, preparation and cultivation of a vegetable garden, I would say to the person intending to prepare one, that the great secret of successful gardening is commencing well, and taking care that what is done is done thoroughly.

In choosing a place for a garden, select a gentle slope, towards the south if possible, and sheltered on the north side by bush or hills, but when there are none, it should be protected by a high and tight board fence or wall; when thus sheltered it will be several days earlier. The best soil for a garden is a sandy loam, but in the absence of this kind of soil from any place convenient to the residence, select the most suitable plot, and thoroughly *underdrain* it. Afterwards subsoil, or loosen the soil to the depth of two feet, without bringing any of the subsoil to the surface. Now haul some sandy loam to the garden, so as to cover it to the depth of five or six inches; if there is none on your farm, there is scarcely a place but what has some within a short distance. *Manuring* will be the next thing under consideration. If the soil is very light, ashes, well-rotted manure, and a little clay will effect a change; if heavy, ashes, manure, sand and lime will be beneficial, The *size* of the garden will depend upon the size of the family. It may be from one quarter to one half an acre; better too small than too large; for it is easy to make it larger if required, and there is nothing so unsightly as to see one end of a garden all grown over with grass and weeds. Now build a substantial *fence*, proof against garden thieves and fowls, for both of these classes are detrimental to gardening. All the time and money spent in the proper preparation of the soil is well spent; it is hardly possible to do too much in this way; it is the foundation of all after culture. It is like the foundation of a building; if an error has been made in this, it matters not how fine the superstructure may be, loss and disappointment will generally be the result. It does not cost much to put a small garden in good condition, while every dollar spent on its cultivation, when in bad order, is so much money wasted. But if put in good condition at first, it is both a pleasure and a profit to the owner. The *implements* necessary for garden culture are not very expensive. Only a few principal ones need be got at first, if expense is some consideration. A line will be found necessary, to lay out the garden walks and beds; a spade, a shovel, and a good hoe are indispensable, and these implements nearly every farmer has already. To draw drills, a drill-marker will be required, which every handy person can make; an iron tooth rake will be found necessary to finely pulverize and level the surface of the beds. A garden-trowel for transplanting, and a watering pot, made of good material, with a substantial wheel-barrow, are among the necessary implements for the garden. A necessary appendage for a garden is a *hot-bed*, so as to have vegetables early; for the majority of farmers do not reside near a professional gardener. A very good mode for constructing one will be found in the CANADA FARMER, vol. III, page 44. Also in the same volume, page 76, will be found a good plan for laying out a garden. No provision, however, is made in it for currants or gooseberries, but suitable places will readily suggest themselves to the reader, for these useful fruits. The biennial and perennial plants should have the warmest plots in the garden.

In the next place, the selection of pure and fresh *seed* will be found necessary to give good satisfaction to the cultivator. The *kind* and *quantity* of the different vegetables and fruits should be left to the taste of the families, but it is not best to attempt to raise too many varieties at first. The pleasure and profit in gardening does not consist in having a great variety, but in growing everything well; many in commencing gardens want to grow everything valuable or new. This causes great trouble, expense, and ends in little satisfaction. The best method is to begin with a few good, tried plants, and add to their number as circumstances require and experience increases. By all means keep trees out of the garden; this is one great error which most farmers fall into, so that in a few years the garden looks more like an orchard than what it is intended to be. A *manure-heap* should be kept in one corner of the garden, upon which throw all the weeds and rubbish of the garden, together with the slops of the house, and turn it over two or three times, when an excellent compost will be made. Declare a war of extermination with all *weeds*, and you will have full satisfaction for all your trouble.

CULTIVATEUR.

Ontario.

Transplanting Fruit Trees.

DRY weather the first year kills many thousands of newly transplanted trees. The condition of the weather and season cannot of course be avoided, but the trees can be put in a condition to stand a moderately dry season. Most persons, on receipt of trees, are in too great haste to plant them out; and particularly so if the trees have been received from a great distance. I myself used to think it necessary to put the trees into the ground as soon as received, but have found out by sad experience that this plan will not always work well. If they have been received from a short distance, and are perfectly *fresh*, then it will do to put them in the ground immediately; but if they have been long on the road and are much dried up, then they must be *restored* before planting. To restore trees, bury their roots in the ground with their tops in a leaning position near the ground, so that they can be shaded and watered conveniently. If they had started to grow when received, keep them in the ground until the whole leaves become a dark healthy green; or if they were dry, keep them in the ground until they commence to grow. If the trees have become very dry, it will be necessary to bury them entirely, root and branch, by putting them in a trench and covering them with earth that will touch every part of their roots and branches. They must be watered frequently, and should remain in this condition from a week to ten days. Trees that have become quite dry, may be perfectly restored when treated in this manner, and when transplanted will grow vigorously, while those that were not treated in this way will be very apt to die.

The *tops* of trees need moisture as well as the roots, and when they are exposed to the wind and sun, instead of receiving moisture, they are dried out and killed. When setting out the trees, dig the hole large enough to admit the roots without breaking or bending them. Spade the ground up loose at the bottom and leave the middle considerably higher than any other part. This will induce the roots to grow downward in their natural position, instead of forcing them to grow upward, as is sometimes the case when they have been crammed into a small hole. Place the tree about the same depth in the ground that it stood in the nursery, then fill all spaces underneath and cover the roots with fine earth *with the hands*, leaving no openings for the air, but completely covering and touching the roots firmly on every part. After filling the hole about half full, pour in a pail of water and give it time to settle before filling in any more dirt. When the hole is filled up, press the earth around the tree to support it in an upright position. Cover the fresh dirt around the tree with straw or litter to the depth of four or six inches, which will obviate the necessity of watering, unless the season should be an extremely dry one. The frequent waterings which many people give their newly transplanted trees are oftener an injury than a benefit to them. If the season be an extremely dry one, it will be necessary to water trees once in two or three weeks. This should be done by removing the straw and loose dirt at the top, and pouring on a pailful of water. After the water has settled, replace the dry dirt and straw as before. Do not leave the earth around the tree naked and exposed to the sun, for it will bake and frequently kill the tree. Watering the tops of the tree in the evening may be done as often as is convenient, with great advantage. It softens the bark and buds, and enables the tree to put forth its tender leaves directly. As to the time of planting trees, I will say that I have always had the best success with spring planting; although autumn planting has many advantages when trees are brought from a distance. But even in this case, I do not know but what it would be better to keep the trees over till spring and then plant them. Trees can be safely wintered in almost any climate by burying their roots in deep trenches. They should be placed in a leaning position, with their tops so near the ground that they may be covered with straw, corn stalks or leaves, to shelter them. Be careful and not cover the tops so closely as to smother them, for they require a small quantity of fresh air to keep them in a healthy condition.

If all these observations are heeded, in transplanting trees of any life at all, they will be almost certain to grow and do well.—*Wis. Farmer.*

The Nursery Business.

WE are glad to learn that the nurserymen have been doing a brisk business the present spring. The season has been an extremely favourable one for lifting and planting trees, and it is well that it has been so fully improved. It gives us especial pleasure to learn that a very large proportion of the orders filled have been from farmers, and that the good work of orchard and shrubbery planting is going on most satisfactorily in all parts of the country. When visiting the Toronto Nurseries, the other day, we were surprised and pleased to see what an extensive clearing out had been made by the spring demands. Mr. George Leslie, jun., assured us that had there been on hand three times the stock there was, it could have been readily sold, so thick and fast did the orders come in. This is, no doubt, owing partly to the well-earned reputation of the nurseries in question, but it is also an evidence and result of the growing interest in fruit culture and rural adornment, of which there are so many encouraging indications on every hand.

To make Cuttings Grow

A correspondent of the *Wisconsin Farmer* says:—"I used to have a great deal of trouble to make currant and gooseberry cuttings or slips grow, until I tried the following plan: I boiled some potatoes until they were nearly done, and then stuck one on each slip and put it in the ground. Every slip sprouted and grew very well all summer, with but one or two exceptions. The idea of putting the boiled potatoes to the end of the cuttings was to furnish and keep moisture enough for them to grow, until the roots became large enough to gather this moisture and substance from the soil. I never tried it on grape cuttings, but do not see any reason why it would not do as well with grapes as anything else."

APHIS BRUSH.—This very useful little implement was invented by the Rev. E. Bell of Colchester. It consists of two circular brushes, one inch in diameter, formed of very soft bristles, about three-quarters of an inch long. The handle is made of steel and is

elastic. Each leaf or shoot is brought between the two brushes, which are gently but firmly pressed together and drawn over the surface of the leaf, by which operation the aphides are removed without injury to the plant. It will be found very useful to those who keep plants in living rooms, or possess a small conservatory, but have no convenient means of subjecting their flowers and plants to fumigation with tobacco. The tediousness of the operation will, of course, prevent the use of the Aphis Brush on the large scale.—*Farmer* (Scottish).

Entomology.

Antennæ of Insects.

IN carefully examining the various parts and organs of insects, we are generally able, without much difficulty, to determine their special functions and properties; but there is one set of organs which has always been a puzzle to the student of natural history, viz., the *Antennæ*, or "Horns," as they are commonly termed. What is the real use of these appendages to the head, so universally found in all orders and kinds of insects, we are only able to guess at; what want of the insect they supply, or what sense they are the channels of, has not yet been ascertained with any degree of certainty. The difficulty is, that we and all animals whose functions and faculties resemble our own at all, and with which we are therefore better acquainted, have no organs that can be compared with these antennæ, or that resemble them in the least; we have thus no ground of analogy to go upon, but must base our views entirely upon the results of experiments. It is evident that they are used to a considerable extent as organs of feeling, and they have long been thought by many to be organs of hearing as well; at any rate the insect appears to employ them in deriving some sensations from the air as well as from surrounding objects, and in the case of ants we see them used apparently as organs of communication.

The late Dr. Clemens, in his valuable monograph on North American Sphingidæ (Hawk Moths) gives a detailed account of some experiments he made upon the antennæ of our largest Emperor Moth (*Samia Cecropia*). He states that he had long thought that the well-known habit of moths of spinning with their heads downwards, on any surface they chance to come in contact with, when they have singed their antennæ in a flame, was the mere expression of pain, and not caused by any loss of power of directing their movements; but that his experiments on these organs seemed to point to quite a different reason. He first tried the effect of cutting off the antennæ of a specimen that had just come out of its cocoon. When night approached, the insect having its wings then fully expanded, made no attempt to fly away, but remained quite docile, and permitted itself to be handled, without any desire to escape, or sense of danger. Upon being thrown into the air it seemed to have no control over its wings, but fell helplessly to the ground, and when forced at last to use its wings in flight, it appeared to be utterly unable to guide itself, and had completely lost all its usual power of hovering in the air. On other specimens, he made the experiment of cutting off only a portion of the antennæ at a time, and found that the more he cut off the less power the insect had over its wings, till at last, after finding itself quite unable to guide its flight, it ceased to employ its wings at all, and remained perfectly passive and helpless. From these experiments, he drew the inference that "the antennæ, instead of being the organs of any special sense, are in Lepidoptera instruments of atmospheric palpation, having especial reference to the action and use of the wings during flight." Of course, these experiments afford us no insight as to the uses of the antennæ of ants and other insects that are provided with these organs, even when destitute of wings.

But though we are unable to discover the exact objects and purposes for which insects are provided with these curious appendages, we yet cannot but admire their manifold beauties and wondrous variety of structure. Sometimes they are mere threads or bristles, at others they resemble saws, clubs, feathers, whips, strings of beads, spindles, combs, or even the leaves of a book; sometimes they are very long and composed of many joints, at others they are short and inconspicuous, with as few as only two joints. Some of the wood-boring beetles have antennæ five or six inches in length, with between twenty and thirty joints in each, and a little moth, about a quarter of an inch long, has them five times her own length. This long-horn moth (*Adela*) is thus described by Mr. Wood:—"It sits on a leaf, basking in the glaring sunbeams, while its antennæ, waving about in graceful curves, are only to be traced by the light that sparkles about them. They are as slender as the gossamer threads floating in the air, and, like them, only seen as lines of light. They are too delicate even for Queen Mab's chariot traces. The grey-coated gnat might use one of them as his whip; but it would only be for show, as becometh the whip of a state-coach; for it could not hurt the tiniest atomy ever harnessed. And yet the little Adela flies undauntedly among the trees, threading her way with perfect ease through the thickest foliage, her wondrous antennæ escaping all injury, and gleaming now and then, as a stray sunbeam touches them."

We have referred above to the apparent use of the antennæ as organs of communication in ants; Kirby and Spence thus describe their language, if it may be so termed, as expressed by these organs. "When the military ants go upon their expeditions, previously to setting off they touch each other on the trunk with their antennæ and forehead; this is the signal for marching, for as soon as any one has received it, he is immediately in motion. When they have any discovery to communicate, they strike with them those that they meet in a particularly impressive way. If a hungry ant wants to be fed, it touches with its two antennæ, moving them very rapidly, those of the individual from which it expects its meal."

The same authors quote Huber's experiments to show that these organs have the same use with bees. "He wished to ascertain how, when they had lost a queen (intelligence which traverses a whole hive in about an hour), they discovered the sad event. He first divided a hive by a grate, which kept the two portions about three or four lines apart; so that they could not come at each other, though scent would pass. In that part in which there was no queen, the bees were soon in great agitation; and as they did not discover her where she was confined, in a short time they began to construct royal cells, which quieted them. He next separated them by a partition through which they could pass their antennæ, but not their heads. In this case the bees all remained tranquil, neither intermitting the care of the brood, nor abandoning their other employments; nor did they begin any royal cell. The means they used to assure themselves that their queen was in their vicinity, and to communicate with her, was to pass their antennæ through the openings of the grate. An infinite number of these organs might be seen at once, as it were, inquiring in all directions; and the queen was observed answering these anxious inquiries of her subjects in the most marked manner; for she was all ways fastened by her feet to the grate, crossing her antennæ with those of the inquirers. Various other experiments, which are too long to relate, prove the importance of these organs, as the instruments of communicating with each other, as well as to direct the bee in all its proceedings."

The Earth-Worm.

WE have been applied to by Mr. Thomas Good, of Richmond, for some information respecting the common Earth-Worm. He desires to know "whether they are an injury to the soil, and if so, what would be the best way to banish them;" and he further states that "there are some fields in our neighbourhood polluted with them; one thing I know, they make the land very hard to plough."

We fear that Mr. Good has rather jumped at a conclusion. His land is hard to plough, and there are worms in it; therefore worms make the land hard to plough! Now, in reality, the very opposite is the case; instead of making the ground hard, the worms are doing their best to improve it. Their great office is to under-drain and till the ground, by burrowing through it in every direction, and thus loosening it and rendering it permeable by air and water; they do for the under soil what digging and ploughing do for the upper. In the first number of last year's volume of the CANADA FARMER (vol. IV, 1867, page 8), we gave an account of the earth-worm, and some of the benefits we derive from it; to which we beg to refer our correspondent. It is true that it is sometimes injurious in gardens from eating off, at night, young and tender vegetables; but it is admitted on all hands, that the good done by this animal to ploughed fields, pastures, and meadows, more than counterbalances any robberies it may commit in the garden, while even there it is of great use. We should be very sorry indeed to suggest any method for its destruction.

The Apiary.

Bees and Fruit Blossoms.

THE people of Wenham, (Mass.,) have voted, by a two-thirds majority, that no bees shall be kept in the town; they have judged that bee-keeping and fruit-raising are incompatible, and that bees are a nuisance. In reference to this subject the *Bee Journal* remarks:—

A silly prejudice against bees is entertained by some fruit-growers, based on the notion that the crops of fruit are injuriously affected, both in quality and quantity, by the visits of bees during the blossoming period. A more unfounded notion, or one deriving less support from observation and science, can scarcely be conceived. Yet it regularly looms up once or twice in a century, and creates as much alarm and consternation among the wiseacres, as the appearance of a comet used to do in by-gone days.

Repeated instances of the resuscitation of this prejudice are presented in the history of bee-culture in Germany, especially in the period between 1530 and 1800. On some of these occasions it was so widely prevalent and so rabid in its demonstrations, as to constrain the almost total abandonment of bee-culture in districts where fruit-raising bore sway. To the aid of this, came the substitution of cider and beer for the ancient mead or metheglin, as the popular beverage; and amid such opposition and discouragement, bee-culture rapidly sank to be of very subordinate interest, except in some favourable localities.

In 1774, Count Anthony, of Torrings-Seefield, in Bavaria, President of the Academy of Science at Munich, striving to re-introduce bee-culture on his patrimonial estate, found in this generally prevalent prejudice the chief obstacle to success. To overcome it he laboured assiduously to show that bees, far from being injurious, were directly beneficial in the fructification of blossoms—causing the fruit *to set* by conveying the fertilizing pollen from tree to tree and from flower to flower. He proved, moreover, by official family records, that a century earlier, when bees were kept by every tenant on the estate, fruit was abundant; whereas then, when only seven kept bees, and none of these had more than three colonies, fruit was scarcer than ever among his tenantry.

At the Apiarian General Convention, held at Stuttgard, in Wirtemburg, in September, 1858, the subject of honey-yielding crops being under discussion, the celebrated Pomologist, Professor Lucas, one of the directors of the Hohenheim Institute, alluding to the prejudice, went on to say:—"Of more importance, however, is an improved management of our fruit trees. Here the interests of the horticulturist and the bee-keeper combine and run parallel. A judicious pruning of our fruit-trees will cause them to blossom more freely and yield honey more plentifully. I would urge attention to this, on those particularly who are both fruit-growers and bee-keepers. A careful and observant bee-keeper at Potsdam, writes to me that *his trees yield decidedly larger crops since he has established an apiary in his orchard, and the annual product is now more certain and regular than before*, though his trees had always received due attention."

Some years ago, a wealthy lady in Germany established a green-house at considerable cost, and stocked it with a great variety of choice native and exotic fruit-trees, expecting in due time to have remunerating crops. Time passed, and annually there was a superabundance of blossoms with only very little fruit. Various plans were devised and adopted to bring the trees into bearing, but without success, till it was suggested that the blossoms needed fertilization, and that by means of bees the needed work could be effected. A hive of busy honey-gatherers was introduced next season; the remedy was effectual—there was no longer any difficulty in producing crops there. The bees distributed the pollen, and the *setting* of the fruit followed naturally.

The Household.

Yet a Little Sleep.

MEN in the present ago live fast. The amount of competition in every calling renders it necessary for almost every man to exert himself to the utmost to procure the very means of subsistence. Science, art, commerce; all the industries are feverishly busy; the Press teems with multitudinous productions, unapproached before in their variety, number, and the dispatch with which they are sent forth at least, if not always so sterling and solid as the works of former times; steam and electricity are enlisted in what may truly be called the race rather than the pilgrimage of life. And if, with all this fast living, the term of life is not shortened, it is because science has done her share in counteracting, in various ways, the exhausting tendencies of the age. The growing insight gained into the laws of health, together with the improvements in the healing art, have in a very marked degree diminished the mortality among children and young persons; while the comforts and conveniences of an advanced civilization have contributed not a little to mitigate the attendant evils of luxury on the one hand, and over-strained mental activity on the other. It may have been needful in the past to urge to industry and effort; it is now, we think, more frequently necessary to enjoin rest and relaxation. Amongst other things, in the matter indicated at the head of this article there is often serious misapprehension and error, amongst both the well-meaning and the selfish and inconsiderate, either in what they allow themselves, or what they exact from others.

Sleep is the most efficacious and most essential restorative for the wear and exhaustion of the system, produced by mental, nervous, or muscular excitement and activity. A due amount of sleep is just as important in the preservation of health, as a sufficient quantity of food. Indeed there are many cases in which a large modicum had better be abstracted from the daily meals, than an hour or two deducted from the period of slumber. Early rising is no doubt an excellent habit, but is not unfrequently too indiscriminately recommended. We have all seen or heard from zealous advocates of the practice, very ingenious calculations of the number of years a man may add to his life, as it is called, by an hour or two daily gained in the time of rising. Now, the calculation is often grievously at fault, and the very opposite of the assertion may sometimes be the true statement of the case. A man does not necessarily add to his life in any sense the hours which he takes from his nightly rest. He may shorten his days by thus prematurely exhausting his powers, and he may render his working ability, either of head or hand, less energetic and efficient while it lasts, in the vain attempt to violate Nature's laws, and curtail the season of repose and reparation. Within the limited scope of the writer's observation, this has been exemplified in more than one melancholy instance. One striking case in point especially presents itself, in the short career of a physician, a man of surprising energy and indomitable will, who made it a rule never to retire to rest before two or three o'clock in the morning, supplementing a hard day's professional work with literary labor (for he was a voluminous writer), yet always rising by seven to commence another day's routine of toil. This man's life seemed a perpetual battle against nature, who would often assert her claims in the most unmistakeable manner. In spite of all his efforts, he would drop asleep in the saddle, over his meals, and at other most inconvenient times and places. As might be expected, he was perpetually threatened with disease of the brain, and notwithstanding every care and precaution, except a proper amount of sleep, succumbed at length to the avenging malady. Sleeplessness, it is well known, is a common precursor, and occasionally the cause of mental derangement.

Admitting or passing over these general statements, it may be asked what is an explicit rule in the case? What amount of sleep does a man require? An eminent English divine used to express his opinion thus: five hours for a man, six for a woman, and seven for a *hog!* This may be a nice and terse way of laying down the law; but give us, nevertheless, the hog's allowance, if not a little more. No exact rule can be given, equally applicable to all. Differences of circumstance, age, temperament, and constitution, require, in this matter, to be taken into account, and vary the needful and healthy proportion between the hours of rest and activity—sleeping and waking. Generally the young require more sleep than the old, the man of active life more than the sedentary, the nervous, excitable temperament more than the phlegmatic. Nature, if only allowed fair play, will commonly prove the safest guide in each case.

We would strenuously advocate early retiring. Then early rising becomes easy and profitable. Late hours, whether devoted to pleasure or to work, are a violation of the laws of health, and cannot be indulged in with impunity. Let children especially go to bed early; they will spontaneously wake when they have had sufficient sleep, and it is cruel to rouse them sooner. Let masters be considerate in this matter; and if they wish their laborers to make an early start in the morning, be careful not to prolong the day's work unreasonably, or rob their dependents in any measure of a healthful amount of sleep. With a *slight modification*, we commend the Irishman's logic, who, after having indulged in an extra morning's snooze, and commencing his day's work in consequence later, made the circumstance a plea for leaving off earlier than usual, for it would never do, he said, to be late at both ends of the day. We may, at least, take a hint from Pat, and safely lay it down as a general rule, that it is not well to be late at either end of the day.

How to Act when the Clothes take Fire

THREE persons out of four would rush right up to the burning individual, and begin to paw with their hands without any definite aim. It is useless to tell the victim to do this or that, or call for water. In fact, it is generally best to say not a word, but seize a blanket from a bed, or a cloak, or any woollen fabric—if none is at hand, take any woollen material—hold the corners as far apart as you can, stretch them out higher than your head, and, running boldly to the person, make a motion of clasping in the arms, most about the shoulders. This instantly smothers the fire and saves the face. The next instant throw the unfortunate person on the floor. This is an additional safety to the face and breast, and any remnant of flame can be put out more leisurely. The next instant, immerse the burnt part in cold water, and all pain will cease with the rapidity of lightning. Next, get some common flour, remove from the water, and cover the burnt parts with an inch thickness of flour, if possible; put the patient to bed, and do all that is possible to soothe until the physician arrives. Let the flour remain until it falls off itself, when a beautiful new skin will be found. Unless the burns are deep, no other application is needed. The dry flour for burns is the most admirable remedy ever proposed, and the information ought to be imparted to all. The principle of its action is that, like the water, it causes instant and perfect relief from pain, by totally excluding the air from the injured parts. Spanish whiting and cold water, of a mushy consistency, are preferred by some. Dredge on the flour until no more will stick, and cover with cotton batting.—*Scientific American.*

BEWARE OF BENZINE.—From the facility with which it removes grease spots from fabrics, this substance has come to be regarded almost as a household indispensable. But few persons, however, realize the explosive character of benzine or the dangers attending the careless handling of the liquid. Being the most volatile and inflammable product resulting from the distillation of petroleum, it vaporizes with great rapidity, so that the contents of a four-ounce vial, if overturned, would render the air of a moderate-sized room highly explosive. The greatest care should be exercised in handling this substance, in proximity to fire, and it is important to remember that the vapor escaping from an uncorked bottle will cause a flame to leap over a space of several feet.—*The Scientific American.*

Hints to Housekeepers

HOW TO WASH GRAINING.—Take clear *warm* water, a clean, white cloth, and wash a small place and wipe dry with another *clean, white* cloth. Do not wet any more space than you can dry immediately with your cloth, as it must not be left to dry in the atmosphere; it must be rubbed dry, hence the necessity for clean white cloths. If the paint has been neglected until very much soiled with greasy fingers, or specked with a summer's growth of flies, a very little hard soap may be put in the first water, and then rinsed off with clean water; but avoid soap if you possibly can, as it dulls the varnish, however carefully used. On no account must it be rubbed on with a cloth.

WHITE PAINT.—As little soap as possible should be used with this, and that in the water and not on the cloth. It not only makes the paint yellow, but, after a little while, removes it altogether. A friend of mine, noted as a housekeeper, would never allow either soap or hot water to be used on paint, except in case of grease." Cold water and a scrubbing brush were her weapons of offence in waging warfare with dirt; but I should rather pay for painting once in a while, than expend as much strength and time as such a process requires. However, it gives a very fresh look to paint, and saves soap and fire if one is inclined to try it. For greasy spots I prefer a very little soda (carbonate), in the first water, to be immediately rinsed off and wiped dry.

FURNITURE.—Mahogany may be washed in very weak suds made of hard soap, and immediately rinsed and rubbed dry with a clean cloth. Some think water must never touch furniture, but once or twice a year; this method may be used to advantage. It makes the articles look as if newly varnished.

White spots made by heat on varnished furniture, may be removed by rubbing with a flannel cloth saturated with coal oil. I have often done so with perfect success. It is much easier than the old hot-paper plan. "R."—*Journal of Agriculture.*

Poetry.

Trees.

BY BENJAMIN GOUGH.

O ye tranquil trees, softly fanned by the breeze
As it languishes past,
Or swept by the wintery hurricane blast
In forests and woods, and wild solitudes,
Or standing alone,
Like sentinels, far in the desert, unknown.

When Adam and Eve trod the garden of God
On the flower-spangled glade,
Trees of Paradise spread in foliage and shade,
And in glory and light, on Lebanon's height,
Grand cedars of old
Grew and flourished, God's planting, for men to behold.

O ye beautiful trees, of thousand degrees
All over the world,
I sing to the praise of your beauties unfurled;
Where the dark Indian roves, or in clustering groves,
Fresh, verdant, and free,
Wherever we wander, we welcome a tree.

The wonderful Oak, when Creation awoke
From chaos and night,
Stretched out his broad arms to feel for the light;
A monarch art thou, with a crown on thy brow,
Thou glorious old Oak,
A king whose sceptre can never be broke.

And the Birch and the Beech, how beautiful each!
With Holly and Yew,
And Fir, in endless variety, now:
Tall Poplars in rows of Sabbath-repose,
And fruit-bearing trees,
By turns our sight and our senses to please.

O chorus of trees, stirred by tempest or breeze,
Break forth into songs,
Sweet chorales of joy from millions of tongues;
Every leaf has a tongue, God's praise to prolong,
The Giver of Good;
Clap your hands and rejoice, O ye trees of the wood!

O ye musical trees, sing your Song of Degrees,
To Dewn divine,
No minster has psalmody equal to thine;
Through the months of the year, your hymns fill the ear:
By day and by night,
God's beautiful trees in anthems unite.

Mark Lane Express.

Miscellaneous.

Little things in Farming.

THE whole success of a farmer hinges upon timely attention to little things. This, mainly, makes the difference between thrift and poverty. The philosophy of success is expressed in that old adage, "For want of a nail a shoe was lost, for want of a shoe a horse was lost, for want of a horse a man was lost." It is a little thing to keep accounts of the pecuniary transactions upon the farm. A half hour Saturday evening would enable most farmers to know just how they stand with the world. Yet, we suspect half of the men who cultivate the soil never make an entry in a book, and for want of this, the account runs up fearfully at the store, and many articles of luxury are purchased for which they are unable to pay at the end of the year. Debt accumulates, the farm is mortgaged, and finally lost, for want of a little paper and ink. It is a little thing to put up a tool in its place when not in use. Yet many have no tool-house, or place of shelter for any implement or vehicle. Things are left where they were last used, the plough in the field, the cart in the yard, the chains in the stable, the harness in the wood-house, the axe at the wood pile, and the rakes in the corn crib. Many do not even house the expensive implements they have bought, and reapers and thrashers are treated like old ploughs and harrows. The parts made of iron and steel grow rusty, and the wood decays. A machine that is good for thirty years with proper care is used up in five by abuse. It is a very little thing to turn a nut when it is loose; yet for want of the tightening the nut is lost, the bolt comes out, and the loaded waggon breaks down on the way to market, and a whole day for man and team is lost. It is a little thing to keep a horse properly groomed; yet for want of clean setlocks the skin cracks and the horse is lame, and the owner loses the use of him for months or weeks. Ventilation is a small affair; yet for want of it the health of stock in stables suffers severely, and disease sets in. It is a small affair to provide good seed at the beginning of the year, but the whole success of the season depends upon it. It is an easy thing to deal fairly with your neighbors and make a name that is better than "precious ointment." Many cheat on small occasions, do not deliver what they sell, and get a reputation for meanness that stands in the way of their success.—*American Agriculturist.*

Filing Saws.

In the first place you should be careful in selecting your saw at the hardware store. If you see one with the teeth standing straight out at right angles with the edge of the blade, or nearly so, hands off from that one; it will cut as well one way as the other, and not very fast either way. Look for one with the teeth considerably raking, that is, pointing downward; not too much, however. The lower edge of the teeth should not be at right angles with the blade, like a mill or hand-saw, but about half-way between that and the large cross-cut saw. See also that the line of the edge is straight or rounding, not hollowing.

Then file the teeth quite bevelling, carrying the file nearly at an angle of forty-five degrees from the blade. This will give a sharp, chisel-like edge to the teeth, longest at the extreme outer edge, which will thus go a little ahead and sever the fibres of the wood, and leave the balance of the end of the tooth nothing to do but clean out the chips of the kerf. In filing, keep the filed edge of the tooth straight—not round it off towards the point—and carry the file level, keeping the hand well up so that you think it is a little more than level.

A saw thus filed will need but little set, and in that little the teeth should be kept straight on their sides two-thirds of the way from the point to the base, and not turned short out just at the point. If one side is set out more than the other, the saw will run from a straight cut towards that side. If the teeth are filed shorter on one side than on the other, it will run in the opposite direction. In filing, you should bear the file hardest against the teeth on the side toward you, or it will cut the opposite side most, and make the teeth the smallest on that side.

A hand-saw should not have quite as much rake as a bucksaw, the object being smoothness rather than rapidity in cutting. In other respects, the same rules will apply.

A slitting saw, that is, one for sawing lengthwise of the grain, should have the lower edge of the teeth stand at right angles with the blade, with a light set, and filed nearly square, beveled just enough to leave the outer corner a trifle the longest. In buying a saw file, never buy the lowest priced. One that costs twenty cents is worth four ten cent ones.—*Wisconsin Farmer.*

Punch advises farmers to sow their P's, keep their U's warm, hive their B's, shoot their J's, feed their N's, look after their potatoes' I's, and take their E's.

☞ House rents are so exorbitant in New Orleans, that a "grasping landlord" advertises to let a splendid hogshead, just vacated by the former occupant, who leaves it for no fault. The premises are a sweet location for a family with young children, are in thorough repair, with bunghole centrally situated, and hoops in good order.

A CHEERFUL VIEW OF THINGS.—"How dismal you look!" said a bucket to its companion, as they were going to the well. "Ah," replied the other, "I was reflecting on the uselessness of our being filled; for let us go away ever so full, we always come back empty." "Dear me! how strange to look at it in that way!" said the other bucket. "Now, I enjoy the thought that, however empty we come, we always go away full. Only look at it in that light and you'll be as cheerful as I am."—*The Moralist.*

AVARICE OUTWITTED.—The following case is reported as having been decided in one of the courts of law. A wealthy man died, leaving the singular will that his executors should have the use of his property until his son, then a young man, should come of age, and that then they should give him such a portion *as should please them*, having full confidence in their friendship. When the time came the greedy executors assigned him one-tenth of the estate, and kept the rest. The young man, being naturally dissatisfied, brought a suit against them, a trial was had, and the judge decided that he should have the nine-tenths, and the executors the one-tenth, on the ground that they had shown by their conduct that the nine-tenths *pleased them.*—*American Agriculturist.*

SELF-POSSESSION IN A DIFFICULT SITUATION.—On Friday, 8th inst., as Mr R. Skead, jun., was riding on horseback over Sapper's Bridge, Ottawa, his bridle suddenly broke, and the horse taking alarm at the accident, dashed away at full gallop, whilst the rider was apparently without the means of guiding or checking his course. The accident was observed by a large number of persons, who all became alarmed for the consequences; as quick as thought, however, the young gentleman leaned over the horse's neck, got his hand into his mouth, seized his tongue, and brought him to before he had got two hundred yards from the spot where the bridle broke. This splendid feat, says the *Times*, elicited the admiration of all who beheld it.

Advertisements.

"RURIC,"

BY IMPORTED "SOVEREIGN," DAM "LEVITY," BY IMP. "TRUSTEE."

THIS Thorough-bred STALLION and RACE HORSE will stand at his Stables, on "The Hamilton Riding and Driving Park," two miles East of the City of Hamilton.

In 1864, RURIO was purchased by Col. T. G. Saunders, from R. Aitchison Alexander, Esq., the celebrated stock breeder of Kentucky, and brought to Canada in the summer of 1865, and is now owned by R. R. Waddell.

To encourage the breeding of good horses, the Terms will be as low as $10 for the season, payable at first service.

HUGH McLACHLIN, GROOM.
v5 10-2t. Drawer 87, Hamilton.

First Prize Cheese Vats!

TO THE DAIRYMEN OF CANADA.

THE UNDERSIGNED keeps constantly on hand the following articles: Cheese Vats and Heaters of all sizes and styles. Red Cherry Press Hoops and Followers, (turned). Screws of all sizes and patterns. Carrying Cans and Dairy Pails, of the best material. Bleached cotton Bandage Cloth, imported expressly for the trade; and everything required in the manufacture of Cheese.

AT LOWEST REMUNERATIVE PRICES.

☞ My Vats took First Prize and Diploma at last Provincial Exhibition.

Address H. PEDLAR,
v5-10-tf. Box 100 Oshawa, Ontario.

FOR SALE!

A FARM OF FIFTY ACRES!

IN the best part of the County of Lincoln, two miles East from the Town of St. Catharines, suitable for fruit of all descriptions. There are now on it about 3,000 trees, Pear, Apple, Peach, &c., coming into bearing, and two acres Grape Vines. Good House, Barn and Stables. For particulars, address

E. GOLDSMITH, Esq., Toronto,
v5-9 2t. Or, A. W. GOLDSMITH, St. Catharines.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS
OF ALL KINDS,
STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,
MADE TO ORDER.

☞ Repairing of all kinds promptly attended to. ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.
Port Perry, March 28, 1868. v5-7-tf

SMALL CHEESE VATS!

H. PEDLAR, Manufacturer, will send to any Railway Station in the Province of Ontario, (free of charges,) a first-class Cheese Vat, all complete, in running order, suitable for twenty to thirty Cows, on receipt of $30.

☞ All work warranted to give satisfaction.

Address H. PEDLAR,
v5-10-tf. Box 100, Oshawa, Ont.

FARM LOTS FOR SALE CHEAP,

in a good settlement, with every convenience.

Apply to C. J. BLOMFIELD, Sec.
Canadian Land and Emigration Co., }
Toronto Bank Buildings, Toronto. } v5-8-4t.

S. GOLDSMITH'S

WARRANTED IMPORTED FIELD, GARDEN AND FLOWER SEEDS, are now ready. Descriptive Catalogues free on application.

25 Packages of Choice Flower Seeds by mail for One Dollar.

Also a fine stock of the celebrated Goodrich, Gleason and Harrison Potatoes. Address,

S. GOLDSMITH,
v5-7-4t St. Catharines, Ont.

JONES & FAULKNER,

(Late J. JONES & Co.)

Dairymen's Furnishing Store!

AND

DEALERS IN BUTTER AND CHEESE,

No. 141 Genesee Street, Utica, N. Y.

DAIRY necessaries of every description always on hand, particularly **Pure Annatto**, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.

☞ Special attention given to Canadian orders. v4-19-tf

FOR SALE,

TWO THOROUGH-BRED DURHAM BULL CALVES—one eight, the other three months old.

v5-10-tf W. RAINES, Barrie.

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. HANN,
v4-20-tf Port Dover, Ont.

IMPORTANT TO

DAIRYMEN AND CHEESEFACTORS.

TRADE MARK.

R. J. FULLWOOD & Co.'s

(Late R. J. Fullwood & Bland's)

HIGHLY CELEBRATED

EXTRACT OF ANNATTO

FOR COLOURING CHEESE AND BUTTER.

THE superiority of this truly excellent, pure, and unadulterated Annatto, consists in its producing in Cheese and Butter, that rich, permanent bright golden cowslip tint colour, so much desired by all Cheese and Butter Factors; and the great celebrity and increasing demand has induced Messrs. R. J. F. & Co. to protect the consumers from fraud, by stamping all their preparations with their Trade Mark, as above—A Stag with Olive Branch,—to counterfeit which is felony.

IN COLOURING BUTTER it will be found by far superior and much cheaper than any other article in use for that purpose, and their Cake Annatto has stood unrivalled for the last 80 years.

ANNATTO WORKS,

SOMERSET PLACE, HOXTON, LONDON,

Established 1785.

*** Sold throughout England and the Colonies, by Chemists and Druggists, but see you get "R. J. Fullwood's," with a Stag.

v5-8-2t-e.o.t.

CANADA WEST

FARMERS' MUTUAL & STOCK

INSURANCE COMPANY,

Incorporated by Act of Parliament, 1852.

PRESIDENT:

THOMAS STOCK, President of the Prov. Agricultural Association.

INSPECTOR:

W. A. COOLEY, Superintendent Prov. Agricultural Association.

12,700 Policies in Force.

AMOUNT INSURED, - - -	$8,700,400 00
AVAILABLE ASSETS, - - -	$ 60,300 00
CASH IN BANK OP MONTREAL,	$ 14,600 00

A three years risk on Frame Barns and Dwelling Houses and contents, taken at One per cent. Premium, and no Premium Note required. Losses paid in full without deduction.

RICHD. P. STREET,

v5-6—6t. *Secy & Treas.*

LAMB KNITTING MACHINE

Price Reduced to 58 Dollars.

IT sets up its own work, knits all sizes, narrows and widens, knits the heel into the stocking, and narrows off the toe complete—producing all varieties of knit goods. It is *simple, durable, easily operated*, and guaranteed to succeed in the hands of *every purchaser*. Send Stamp for Circular and sample stocking.

JAMES D. ORNE, *Gen. Agent.*

v5-8—tf. 176 State Street, Rochester, N. Y.

TO FLAX GROWERS.

THE undersigned will have, the present season, a supply of FLAX-PULLING MACHINES, which we can guarantee to do good work, having been fully tested last season. New improvements added this year. Send for cut of Machine and Price List.

OSWOLD & PATERSON,

Woodstock Iron Works.

1st May, 1868. v5-9-6t.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,

167 King Street East, Medical Hall, Toronto.

14-tf

Markets.

Toronto Markets.

"CANADA FARMER" Office, May 14th, 1868.

There has been rather more doing recently in produce; the market, however, is still very quiet. The sales taking place are principally on private terms.

FLOUR AND GRAIN.

Flour—The market has been very dull. At the date of our last report $7 15 was the price ruling for No. 1 superfine; to-day, however, $7 10 was accepted for 500 barrels of a good brand of No. 1 superfine.

Wheat—There is rather a better demand since our last report. Within the last few days the demand has improved, and several large lots changed hands at fair prices. Yesterday, 10,000 bushels changed hands, and to-day about 15,000 bushels. The sales were principally of midge-proof and golden drop, which sold in large lots at $1 70 for midge-proof and golden drop. In fall wheat there has been nothing doing. On the street market there has been very little doing. The prices paid were $1 65 for spring, and $1 80 for fall.

Oats—The market has been firm. Yesterday a lot sold at 54c, and to-day 1 car changed hands at 55c, in bags. On the street market from 58c to 60c is paid, the same prices ruling for retail lots.

Barley—The market has been very quiet. No sales except retail lots took place since our last review. Quotations nominally unchanged.

Peas—During the week the market was firm, with an advancing tendency; to-day, however, owing to an advance in Atlantic freights, buyers reduced their bids. Sales were made during the week at 91c; to-day lots were offering at 91c, with no buyers at over 90c. On the street market a few loads sold to-day at 88c.

Hay—Per ton, $15 to $21.

Straw—Per ton, $10 to $13.

PROVISIONS.

Butter—A consumptive demand only. Tub, per lb., 16 to 20c. Rolls, 22 to 25c.

Cheese—New, 10¼ to 11¼c.

Pork—Prime Mess per bbl., $16 to $17.

Bacon—$9 to $10 50.

Eggs—Packed, 10 to 12c; retail, 12 to 13c.

Potatoes—There is a fair supply. The current rates are 65c to 70c. per bushel by the load, and 90c. to $1 00 per bushel by the bag.

Apples.—The market is advancing as the fruit becomes scarcer. For choice samples as high as $3 would now be paid. Dried apples dull at $1 25 to $1 50.

CATTLE MARKET.

The market has been firm for first-class cattle; the supply, however, has not been equal to the demand. We quote per 100 lbs. dressed weight: 1st class, $8 00; 2nd do. $7 00; 3rd do. $6 00. There has been a good supply of 2nd and 3rd class cattle, but few 1st class. The late Guelph and Elora fairs were attended by a good many buyers from Montreal, Toronto, and Quebec; a few American buyers also being present. About 15 car loads of cattle changed hands at from 5c to 6c per lb. live weight.

Sheep of all kinds have been in good demand. We quote:—1st class $7 00 each; 2nd class $6 00 each; 3rd class $5 00 each.

Lambs have been in better supply, and are lower. We quote:—1st class $2 50; 2nd do. $2 00; 3rd do. $1 50.

Calves: 1st class, none offering; would bring $8 00 to $10 00; 2nd and 3rd class—market perfectly glutted; bring only from $1 50 to $4 00.

Hamilton Markets, May 12.—*Fall Wheat*, per bushel $1 62 to $1 72; *spring wheat* per bushel $1 55 to $1 62; *barley* do., $1 35 to $1 40; *oats* do., 60c to 65c; *peas* do., 85c to 90c; *corn* do., 65c to 70c; *potatoes*, per bag, $1 25 to $1 50.

London Markets.—*Grain*—Fall wheat per bushel, $1 60 to $1 66; spring wheat $1 50 to $1 55; barley $1; peas 80c to 82c; oats 43c to 44c.—*Hay*, per ton $8 to $10; straw per load $3 to $4; *potatoes*, per bushel, by load 60c to 70c; *carrots*, do. 25c.

Montreal Markets. May 13.—*Flour*—Superior extra, $8 to $8 25; extra $7 80 to $7 90; fancy $7 60 to $7 70; Welland Canal superfine $7 25 to $7 50; Superfine No. 1 Canada wheat, $7 30 to $7 45; superfine No. 1 Western wheat $7 25 to $7 50; superfine No. 2 Western wheat, $7 05 to $7 10; bag flour per 100 lbs, $3 50 to $3 60.—*Wheat*—Canada Fall, none; Spring, $1 72½ to $1 75; Western $1 66 to $1 70.—*Oats*—Per 32 lbs 47c to 48c.—*Barley*—Per 48 lbs $1 10 to $1 15.—*Peas*, 87c to 88c.

Chicago Markets, May 13.—Wm. Young and Co.'s report.—*Wheat*—Receipts, 21,000 bushels; shipments, 53,000 bushels. No. 2 firm at $2 11¼.—*Corn* firm at 66c; receipts 115,000 bushels; shipments 94,000 bushels.—*Pork* dull at $23.

Galt Markets, May 12.—*Flour*—Spring wheat $4; fall wheat $4 50. *Grain*—Fall wheat $1 63 to $1 73; amber wheat $1 60 to $1 63; spring wheat $1 58 to $1 62; barley 55c to 90c; oats 55c; peas 80c to 85c. *Seeds*—Clover seed $4 to $4 50; timothy seed $2 to $2 50. *Hay*—$10 to $15. *Butter*—16 to 18c. *Eggs*—9 to 11c. *Hides*—$6 to $7. *Sheepskins*—70c. *Wood*—$3 50 to $4. *Potatoes*—70c to 80c. *Pork*—Per 100 lbs., $5 to $5 50.

Guelph Markets, May 12.—*Fall Wheat*—Per bushel, $1 75 to $1 80. *Spring Wheat*—$1 60 to $1 64. *Oats*—56c. *Peas*—80c to 85c. *Barley*—$1 20 to $1 25. *Hides*—Per 100 lbs. $6. *Beef*—do., $7 to $8. *Pork*—do., $5 to $6 06. *Straw*—$3 to $4 per load. *Hay*—$9 to $11 per ton. *Eggs*—10c to 11c per doz. *Butter*—13 to 14c per lb. *Apples*—Per bushel, 50 to 60c. *Potatoes*—Per bag, 60c to $1. *Sheepskins*—70 to 80c.

New York Markets.—*Flour*—Dull; receipts, 7,377 barrels; sales, 5,100 barrels at $8 40 to $9 for super State and Western; $9 60 to $10 05 for common to choice extra State; $9 50 to $10 50 for common to choice extra Western; $9 60 to $13 60 for common to choice extra round hoop Ohio. *Wheat*—Unchanged; receipts, 7,600 bushels; sales, 56,000 bushels at $2 37 to $2 38 for No. 2 spring; $2 46 for No. 1 do; $2 78 for Amber Penna; $2 82½ for Amber Canadian. *Rye*—Firmer; sales 9,000 bushels Western State at $2 05 to $2 07. *Corn*—Easier; receipts, 31,900 bushels; sales, 41,000 bushels at $1 17 to $1 18½ for new and old mixed Western afloat and in store. *Barley*—Quiet. *Oats* Firmer and quiet; sales, 12,000 bushels at 83c for Western afloat. *Provisions*—Pork dull and heavy at $23 63 to $23 85 for new mess; $27 50 to $27 62 for old do. *Lard*—Quiet and steady at 19c to 19½c.

Contents of this Number.

PAGE

THE FIELD:

The Reproductive Organs of Plants (with cuts) 145
Profitable Farming 146
War against the Thistle 147
Sandy Land 147

STOCK DEPARTMENT:

Prize Draught Stallion "Young Conqueror," (with engraving) 148
Animal Life 148
Classification of Stallions 149
Prolific Sow 149
Fastening for Ox Bows (with cuts) 149

RURAL ARCHITECTURE:

Useful Contrivances in Rural Economy (with cuts) 149

THE DAIRY:

Dairy Farm in Chester County, Pennsylvania 150
How to Make Guide Butter 150

VETERINARY DEPARTMENT:

Curb in Horses 150
Veterinary Queries 150
Loss of Mane and Tail 151
Swollen Abdomen 151

POULTRY YARD:

Characteristics of various Breeds of Poultry 151

CORRESPONDENCE:

Township Societies 152
Queries concerning the Agricultural Bill 152
A Dilemma 152
Oil Cake—Hedges—Winter Wheat 153
White Melilot 153
Tarpaulin for Stacks 153

EDITORIAL:

The Season 153
Book Notices: The Canada Short Horn Herd Book, American Cattle, &c 153
Act Respecting Cruelty to Animals 154
Protection of Small Birds 154
The New Patent Bill 154
Dogs 154
Sale of Prize Durham Bull 154

AGRICULTURAL INTELLIGENCE:

Deep Cultivation at Yeaton 154
Preserved Meat from Australia 155
Ploughing Match 155
Agricultural Societies 155
Nova Scotia Agricultural Exhibition 155
Brief Items—Early Rose Potatoes; Small Fruits, Beet Root Sugar in France; Clifford; Maple Sugar 155
Emigrants for Canada 155
Fish Culture in England 155

HORTICULTURE:

The Vegetable Garden 156
Transplanting Fruit Trees 156
The Nursery Business 156
To make Cuttings Grow 156
Aphis Brush (with cut) 156

ENTOMOLOGY:

The Antennæ of Insects 157
The Earthworm 157

THE APIARY:

Bees and Fruit Blossoms 157

THE HOUSEHOLD:

Yet a Little Sleep 158
How to Act when the Clothes take Fire 158
Hints to Housekeepers 158

POETRY:

Trees 158

MISCELLANEOUS:

Little Things in Farming 159
Filing Saws 159
A Cheerful View of Things 159
Avarice Outwitted 159
Self-possession in a Difficult Situation 159

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for ..... NINE DOLLARS.
TWENTY COPIES for ..... SIXTEEN DOLLARS.
FORTY COPIES for ..... THIRTY DOLLARS.
ONE HUNDRED COPIES for ..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,

Managing Director.

THE CANADA FARMER

VOL. V. No. 11. TORONTO, CANADA, JUNE 1, 1868. POSTAGE FREE.

The Month.

JUNE is indeed a charming month in this climate. It is a delightful compound of spring and summer. The uncomfortable wintry chilliness is gone, and the scorching July heat has not yet come. Bright sunshine glorifies all nature; innumerable flowers display their loveliness; the fields are decked in their freshest green; the forests are bursting into leaf; while the air is vocal with the chirp of insects, the song of birds, and the gentle music of the zephyr and the breeze. Activity and beauty are to be seen on every hand.

The mean temperature for June, at leading points in our Dominion, are as follows:—

Stratford	61° 82
Hamilton	63° 50
Barrie	62° 27
Toronto	60° 20
Belleville	63° 17
Montreal	63° 66
Quebec	62° 20
St. John, N. B.	54° 53
Halifax	56° 00

As observed in our last article on "The Month," Quebec has now gained upon Ontario in the matter of heat, a somewhat singular fact in Canadian climatology. We believe also that our sister province is never in terror of a June frost. Spring is tardy and late, but when once it sets in, there are no unpleasant reminders of winter.

The present season retains its character as a model one. After a most propitious time for seeding, a remarkably copious rainfall came, not in deluging torrents, but in steady, abundant showers, thoroughly filling the soil with moisture, and yet not making it too wet for tillage. Along with the plentiful rain we have had fine growing weather, so that grass and grain have come on with great rapidity, and present a most promising appearance. An unusually large breadth of land has been sown, owing to the favourable character of the season, and should no unpropitious circumstances intervene, the prospect is fair for most abundant crops. There is, so far, a fine promise of fruit. The orchards are ablaze with blossom. The plum and cherry trees have outdone themselves this year, in abundance of bloom, so much so that everybody has felt that they were worth the ground they occupy for the transient show made in flowering, even though they yielded no fruit. Strawberries, currants, and gooseberries are also full of blossom. There is the same profusion of bloom in the woods, furnishing a considerable honey yield, of which "the little busy bee" is taking all possible advantage. Apiarians as well as agriculturists have hope of a remarkably good season. The indications are for early and strong swarms.

Nothing can exceed the splendour of the woods and the lovely "garniture of the fields," at the present time. There are more tints of green in nature's great show-room than the most skilful painter could compound to order, were he put upon his mettle for the credit of his art. Go where you will, "there is beauty all around," except where man has constructed some unsightly structure of which all surrounding objects appear to be ashamed. How strange it is that people do not catch the contagion of loveliness from nature. It is possible to throw an air of taste and refinement over the simplest and cheapest buildings, and surely we should aim to do this, for what right have we to disfigure a world which the Creator has made so beautiful!

It has been observed with much truth that "in no month of the year are the prose and poetry of farm life more mingled than in June." The nice poetry of pleasant views amid the fields and forests, does not relieve us of the stern prose of planting potatoes and hoeing weeds. As a natural result of the features of the season above-noted, there is a prodigious array of weeds bristling up with a sort of instinctive ubiquity. It will be a tough battle to keep them down, judging from present appearances. Many a vegetable bed, potato patch, and corn-field will succumb before them. There is no way to succeed in the strife with weeds but to take time by the forelock. Like evil habits, they are easily subdued before they have obtained strength, but when once they have secured a foothold, it is not easy to uproot them. The cultivator, horse-hoe, hand-hoe, and garden-rake, must be kept in motion early in the season, if these pests are to be overcome.

June is the month for putting in corn, turnips, and buckwheat. All these crops ought to be grown more extensively. For some reason or other many Canadian farmers have a prejudice against Indian corn, which is a most useful grain, and gives a good yield if a suitable variety is planted. It is useless to attempt the large Western corn in this country, but the eight-rowed yellow and similar kinds will ripen and produce well. It is not the least advantage of a corn crop that, requiring as it does clean culture, it leaves the land in such excellent condition for future use. For green forage there is nothing equal to a piece of corn sown broadcast. It will give a greater weight of forage than any other vegetable, and from its juicy nature it forms a most excellent article of diet for milch cows. Every dairyman should have a patch as a reserve for the times when pasture is scant. We would reiterate the advice given a month ago about turnip-growing. The farmer who fails to have a field of turnips doesn't know what is good for himself, for his stock, or for his land. Buckwheat should be grown for the flour, and also as a green manure crop, than which there is no better.

All through the summer-time, there should be the most rigid economy and care exercised in regard to all manurial substances. The compost heap ought to be growing and ripening along with the grain crops. Keep scraping up and mixing together cattle droppings, poultry dung, kitchen refuse, fence corner sods, garden weeds, swamp muck, and ordinary soil. No fertilizing material should be suffered to waste.

Barns, hay mows, and sheds, must now be put in order to receive hay and grain. Mowing and reaping tools should be provided and put in working trim, that there may be no time lost when the grass and grain are ready to cut.

Dairy operations are now in full blast. Be it remembered that cleanliness is the first law respecting these operations. Aim to make butter and cheese of the first quality, and so secure the highest market price. Sheep-washing and shearing now claim attention. They should be done in settled warm weather, and the newly shorn animals ought to be housed at night and during storms until they become used to the loss of wool. By the end of June the first crop of clover will be ready to cut for seed. All and sundry who have Alsike clover are hereby counselled to save the seed. It yields liberally, threshes easily, and the hay is but little the worse for thoroughly ripening. The valuable qualities of this clover are beginning to be appreciated, so that the seed is likely to be in demand at a remunerative price.

Orchards will repay extra trouble and attention in the way of stirring the soil, harrowing in a liberal supply of well-rotted manure, and exterminating insects. This is a busy month in the garden, and more than our whole page would be required to give even a brief calendar of seasonable operations. June is also an important month with bees. There are many improved methods in connection with swarming, securing surplus honey, Italianizing an apiary, and keeping stocks in good order, to understand which, bee-keepers should provide themselves with such a manual as Thomas's "Bee-Keeper's Guide."

The Field.

Weeds

WITH what wonderful prolificacy the soil brings forth weeds? How provoking it is to see your newly harrowed field, or your just completed garden, bristling up with an army of young weeds. The expletives of hard-working farmers and gardeners against these cumberers of the ground are uttered with an energy which leaves no doubt of their sincerity and earnestness. When you come to facts on this subject, the prolificacy of weeds is something terrible to contemplate. Dr. Lindley estimates, as a low average, the following number of seeds from each of the four plants named.

1 plant of	Groundsel	produces	2080	seeds.
1 "	Dandelion	"	2740	"
1 "	Sow Thistle	"	11040	"
1 "	Spurge	"	540	"

Here then is a good chance for the growth of 16,400 plants, or enough to cover three acres and a half at three feet apart! To hoe this land, Dr. Lindley says, will cost 6s sterling per acre; and hence a man throws away 5s 3d a time, as often as he neglects to bend his back and pull up a young weed before it gets into flower. He recommends every gardener whose vertebral column will not bend to pull weeds, to count the number of dandelions, thistles, &c., on the first square rod he can measure off. It would be well for a similar estimate to be made as to the pig-weed, mullein, fox-tail, chick-weed, burdock, purslaine, and last, but far from least, Canada thistle, which so abound in this country.

Not only the prolificacy, but the ready growth of weeds, forms a most formidable obstacle to good husbandry. They seem to spring up and flourish as if there were some special provision in the soil to favour their quick development. They always outgrow the useful forms of vegetation, unless you can favour them in some way, and give them a start in advance. No sooner is one generation of them destroyed, than another starts into life, and it often seems as if the ground literally swarmed with the seeds of these noxious things. Many of them also are very tenacious of life. A war of extermination, root and branch, is the only thing that will do for them. Leave the least sprig or fibre of them in the soil, and they quickly re-establish themselves.

Yet, after all, these discouraging facts about weeds have another side to them. The same provision for quick growth which fosters weed-life, is necessary for the useful forms of vegetation. Our hope of smiling and abundant harvests rests on the same laws of nature under which weeds fructify so fast, and multiply so fearfully. Moreover, weeds, by their presence and growth, rouse up energy on the part of the tiller of the soil, and compel that constant shaking and loosening up of the ground which is necessary to high and successful culture.

There is only one way of dealing with these pests. They must be got rid of. It is of no use to tamper with them, or to be satisfied with half-way measures. To mow them down and let them speedily grow up again, —to leave them by the fence side and in the fence corners to mature and scatter their seed,—to let them get into flower and then cut them down when they have vitality enough to perfect their seeds, leaving them to wither and die on the ground,—these are some of the slip-shod make-believe methods of destroying weeds. An energetic thistle or mullein laughs at such half-way work, and will infallibly increase and multiply in defiance of it. We must wake up to the necessity of thoroughly eradicating weeds. People ridicule the idea of legislating on this subject, but the evil is becoming so serious that something effectual must be done; and if public sentiment cannot be created, such as shall secure weed extermination, law must try its hand. In Michigan they have statutes on this subject, that even forbid throwing weeds into the highway; and if we had a law requiring utter eradication of weeds, though its enforcement would be troublesome and expensive at first, it would be in the end a most beneficial piece of legislation, under which the material interests of the country would prosper greatly.

The Germantown (Penn.) *Telegraph*, commenting on this subject, says:

"The cleanest and best farm we ever saw was that of the 'Highlands,' belonging to the late Mr. George Sheaff, in Montgomery County. In a tract of land of over three hundred acres there was scarcely a weed to be seen, so thoroughly were they destroyed as they appeared. The fence-corners, usually the hot-beds for the propagation of bastard vegetation, Mr. S. had systematically cultivated; and he informed us that he raised enough hay from these worse than neglected spots to pay all the expenses of the weed-destroying process.

"Farmers should make common cause against all noxious products; for it is folly for one farmer to begin the war, if his neighbor befriends the enemy. That which, with every good farmer, is a law unto itself should be found in black and white in the statute of every state in the Republic—an enactment requiring the destruction of all noxious weeds before the maturity of their seeds. If such a law could be enforced, it would be a blessing to the country of incalculable worth. There is scarcely a neighborhood which does not have to endure one or more careless, slovenly farmers. These easy fellows will keep the whole community in a wakeful and laborious watch, in destroying vile weeds, the seeds of which were allowed to mature on their farms, and which birds and winds carry and scatter everywhere. Such men will never learn from the precepts and examples of others to destroy these pests; and the only means of redress for the sufferers is to have a stringent weed-law passed, and then enforce it. The penalty should be a fine, and go into the school-fund. To some this may appear a matter of little consequence; but let such live by the side of a weed-growing farmer for a few years, with only a rail-fence to separate their clean fields from the burry, docky, thistly, sorrely, red-rooty, pig-weedy, briery fields of such a pretender, and they will be satisfied there are certainly consequences which rail-fences or even stone-walls do not check; and there is little doubt that then they will be ready to put proper estimate upon the matter, and to go in heart and hand for a weed-law the present session of the legislature."

Wild Oats.

A correspondent from Elma, named Edward Hammond, in our number of the 15th ult., makes enquiries about "Wild Oats," and the best method of extirpating them. We were in hopes that this pest had not reached Canada to any serious extent; but on enquiring we find that they have made their appearance in the County of Perth, and have for some years justly excited considerable apprehension.

We shall first describe the weed. There are two kinds of wild oat—(no doubt there may be others, but these are the best known)—the *avena fatua*, or common wild oat, and the *avena sterilis*, or great wild oat. Both these kinds have annual roots. They are taller plants than the cultivated oat, and of much stronger and grosser growth. They stand the winter and produce their crop of grain earlier than any grain with which they happen to be mixed; and hence their chief danger. You can never be sure of cutting them in time. They have several peculiarities, but the worst one is that the grain is covered with bearded or hooked fibres, which hang on to everything they touch, whether straw, or implement, cattle, or anything they may come in contact with, so that they seem to have an unlimited power of spreading, and almost of locomotion; indeed one of the species is so furnished with these "hooks," and so much affected by damp weather, and so hygrometric, that it is termed the "*animated oat*," and when placed on paper under a glass, will of itself move on the surface of the paper by its own power of expansion and contraction. They bear any amount of cutting before the grain finally forms in the head, and if kept mown or eaten down from time to time without going to seed, they become biennial, and will live into the second season. When cut three or four times, they often throw up short seed stalks, which bear a full head of seed when only a few inches high, or when lying down amongst other crops or grass. The seed seems to be almost imperishable, and unless it can be got to germinate will lie in the ground for many years. When once it germinates, however, it must grow or die. It will thus be seen that this species has all the properties of a most dangerous and pestiferous weed. The only place in Canada in which they are known is the County of Perth, but they have spread so rapidly, that they menace the whole country.

They came into Perth in this way: one of the settlers near Sebringville, not being pleased with the Canadian barley, sent home to his native land for some seed of the kind of barley he had been used to. He got it out, and in it was found a few plants of the present wild oat. He was not acquainted with its nature, or he would of course have destroyed it; but it made so fine an appearance that he saved the seed. The next year he ascertained the fact that it would survive the winter if grown in the fall, like fall wheat, and the settlers thought they had found a great prize! The grain passed from hand to hand as a curiosity at first, and was finally sold as a valuable acquisition. It was fed to cattle, and thus commenced to spread. The newly-cleared land of that (then) new settlement, formed the best nursery the weed could have, since nothing can be done to plough stumpy and rooty land clean, and the plant thus spread and flourished. The crops were infested with the weed; what did not fall on the ground was carried into the barns, and spread into the farm yard; the travelling threshing machines carried it from place to place, and it is now become an established agricultural plague of the district. Now every one is looking to the cure, and that is a hard thing to manage. Wherever stumps and roots exist, there this weed has it all its own way, unless every plant is pulled out of the ground; it is only in the absolutely cleared land there is any hope of its extirpation.

Many persons flatter themselves that they can get rid of the wild oat by laying the land down to grass. They do get rid of it for the time, but every grain of seed which lies at too great a depth to germinate, remains in a sound state, ready to come forth into a plant on the first favorable opportunity; this is now a proved fact in Perth.

Fallowing in a such a manner as to cause the seed to germinate, and then ploughing under, is a sure cure, so far as it goes; but you can never get to the end of the seed in the ground; they seem to *sink* into the earth, and to hybernate until a favorable season occurs.

Harrowing or scuffling the stubbles, is an excellent plan; by so doing all the oats that are on the surface and ripened before the crop grow, and are then killed by the plough. But a combination of all these methods is all that can be depended on.

The growth of the wild oat is so luxuriant that it altogether heads the wheat in the spring, and can thus be distinguished, and pulled by hand without difficulty. The surest plan, however, is to prevent their establishment. Attack them tooth and nail, from the first minute of their growth till they finally go into the barn, and your labors soon make themselves felt; but it is to be doubted if they can ever be entirely destroyed on any farm on which they have once got seriously ahead.

On the farm in England on which the writer first got any agricultural experience, there were many of these wild oats. Every means were used, and they were finally so thinned out as to be of small consequence; but just about that period, the (then) new ideas about deep tillage became known and practised, and on the farm in question one field of about of fifteen acres was ploughed deeper than it had before been by the depth of two inches; the field was sown to peas; but, to our astonishment, it seemed to come up in grain. Wild oats were not thought of, but they were the intruders. As soon as their well-known rank growth and dark glossy leaves were recognized, the danger was appreciated, and the entire crop of oats and peas (and a most luxuriant crop it was) was fed off by sheep, and cut and carried in a green state for cattle and horses. Not one grain ripened, and we thought we had got rid of them; but

the next year they came again, and kept all hands busy for weeks pulling them out from amongst the next crop, and it was several years before the plague was stayed.

The stalks and leaves are not well relished by cattle and sheep; they are bitter, and when other provender can be had, they are refused. They are not hurtful, however, and animals when confined to them, will do well on them and eat them up clean.

Any one may thus see what a dangerous pest this is, and if ever a law was required it is against "wild oats." Thistles are nothing to them. A thorough summer fallowing, with so frequent ploughing as to prevent their ever "showing green"—from five to six times during the season—will absolutely free a field from thistles; but wild oats only "hide their time." So long as the seed is in the ground, so long you may be sure that in time, and under favorable circumstances, they will again appear in a greater or less degree.

If the wild oat could be hybridized (a most hazardous undertaking, however,) and made to produce berries as heavy and nutritious as Angus, or black oats, they would become a valuable crop, on account of their earliness and hardiness; but we fear the time is far distant when this will be done. Meantime, utter destruction is the only course which can be safely pursued.

Potato Growing.

To the Editor of THE CANADA FARMER:

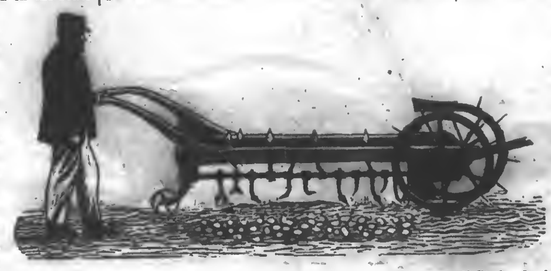
SIR,—In your issue of March the 16th, I noticed the remarks of E. R. S., of Napanee, on growing potatoes, a subject which, if properly discussed, I consider of very great importance. It appears to me that he has not done justice to it, although I agree with him in the sentiments expressed in the commencement of the article. They are very good as far as they go, but I think he has laid too much stress on the ignorance of his neighbours. I have frequently visited that part of the country, and I think that E. R. S. has very different neighbours from the class which he has represented. He should surely admit that the reason of the light crops last year was in consequence of the dry season: In the neighbourhood where I reside, I saw whole fields where the ground was well cultivated, that did not yield more than one quarter of a crop. In consequence of the extreme drought, many farmers did not plant any potatoes. The wet in spring continued so late, that they thought it useless to make any attempt after the season was so far advanced. This, I think, accounts for the light crops last year. He gives us his experience with regard to preparing the seed and planting. I agree with him in cutting the large ones, but those that are too small to cut once should be fed up, as I think the practice of planting small potatoes should not be indulged in. In the township where I live, farmers prepare their ground by manuring, and summer fallowing if necessary, and also their seed by cutting in such a manner that there are from three to five eyes on each piece. They cut a light furrow, drop the cuts about one foot apart in the drills, and put the rows about twice that distance, cover with a plough, and when they are about coming out of the ground, put on a harrow with teeth two or three inches long; harrow once in a place; the potatoes being in the furrow, will not be disturbed. This levels the ground, destroys the weeds, if any, and gives the potatoes a good start. They are then left until ready to hoe, which is done by ploughing through them with a shovel plough. If this is properly done, there is very little occasion for the hoe. In this way I have raised and seen others raise very remunerative crops. I think it would pay E. R. S. to cut his potatoes very small, if he only wants four stalks in one hill, for the smallest potatoes have from ten to fifteen eyes; and to put in the whole potatoes would certainly produce more vines than four.

A SUBSCRIBER.

Ernestown, April 29th, 1868.

Hay Tedders.

A CORRESPONDENT of the *Co. Gent.* expresses the opinion that the Hay Tedder is not sufficiently appreciated. In this I fully agree with him. Having a large crop of hay to secure the past season, and believing in the use of improved and labor-saving implements, I determined to test the value of the tedder. After getting what information I could, and examining different patterns in the market, I purchased "Garfield's," manufactured by the Ames Plow Co., which they have exhibited at the fairs this fall; on which, they informed me, they had expended $20,000 in perfecting. After cutting with the machine, we started the tedder, which turned up the grass, and left it lying up light so that the sun and air could act upon the whole. This made the labor of raking very easy. In a good day, by repeating the process two or three times, the hay would be made sufficiently dry to go into the barn. It turned hay, spread from the cock or windrow with great rapidity, and much better than by hand. One advantage of this tedder is that the hay is not raised more than eighteen inches from the ground; and should the wind blow, it is not scattered where it is not wanted. I have never used an implement with better satisfaction. It is of easy draught for one horse. It performs its work better and much quicker than by hand. In *catching* weather, as in the past season, there is less risk from damage. In curing second crop, its services are invaluable. Every one knows the difficulty of getting it sufficiently cured. Hay dealers inform me, that since the advent of mowing machines, the quality of the hay is not so good as formerly. The grass lying flat, the top is made too much, while the bottom remains green. This is remedied by the tedder, as it is mixed indiscriminately, giving all parts an equal opportunity to make.—*Co. Gentleman.*



Prize Potato Digger.

AMONG the implements exhibited at the Provincial Exhibition last fall was a very effective looking Potato Digger, which we briefly noticed at the time. The first prize was awarded for this implement. We have since seen testimonials in its favour by persons who have actually used it, and who speak in high terms of its efficiency. The accompanying illustration will give some idea of its general appearance and mode of working. It is drawn by two horses; one on each side the furrow. The large wheels in front are connected by their axle and cog-wheels with a rod running underneath for the whole length of the implement. This rod is furnished with shovels or teeth, projecting sufficiently to enter the ground, as the rod revolves, and passing below the tubers without cutting them, to throw them out to some little distance on one side. The two hinder teeth are forked, to take up the smaller tubers left by the others. The rod revolves pretty rapidly, and the dirt and the tubers are separated as they fall to the ground, the latter being thrown further aside, so as to be partially cleaned in the operation. The inventor is Mr. Alfred J. Lemon, of Lynden, Ontario, to whose advertisement in the present issue we refer the reader for further information. We believe the price of the implement is somewhere between $30 and $40. It will be to the interest of manufacturers to make them as cheaply as possible, otherwise farmers will continue to dig their potatoes with the plough.

Varieties of Wheat.

To the Editor of THE CANADA FARMER:

SIR,—Believing that it would be a general benefit if the numerous readers of your excellent paper were to contribute their experience in testing different varieties of farm produce, I will give you mine with the following varieties of wheat, viz.: White California, Italian White Mediterranean, Virginia Blue Stem, Norfolk Red, Bald Mediterranean, Boughton White, and Diehl. The first four were winter-killed, and the remaining three varieties have wintered first-rate and promise well.

Of the Diehl wheat I had an average of forty-four bushels per acre from nine acres sown last year, and for hardiness, productiveness and quality, I consider it superior to the other varieties named.

I am, Sir,
Yours, &c.,
LEWIS SPRINGER.

Hamilton, May 13th, 1868.

Cabbages, Kohl-Rabi, and Rape

WE learn from *The Farmer* (Scottish) that in 1866 "nearly six per cent. of the land, under green crop cultivation, in England; three and a half per cent. in Ireland; and seventy-five per cent. in Scotland, was occupied with cabbages, kohl rabi, and rape. In the different English counties, the extent of ground under these crops varied greatly; thus, in Cambridgeshire, they occupied twenty per cent. of the area under green crop; in Lincolnshire, ten per cent.; and in Northumberland, two per cent. They are found in all parts of Ireland, though they are most extensively grown in the midland and southern counties. In Scotland, they were cultivated most extensively in the counties of Lanark, Dumfries, and Edinburgh; however, no county contained more than 500 acres, and in no instance did they grow three per cent. of the green crop. In Orkney and Shetland, 355 acres were grown; 2.19 per cent. of the area under green crops."

It is doubtless one of the faults of Canadian farming that such crops are not more extensively grown, supplying as they do a juicy food of which stock are very fond, and helping to form a desirable rotation which leaves the soil in a very mellow state. We scarcely remember any instance of a field of cabbages being raised in this country for feeding to cattle. The same remark may be made in reference to Kohl-rabi. Has any one given this plant a trial in Canada, and if so, with what result? Rape we have occasionally seen, but its culture is a very rare thing. Those who are going into the breeding of improved cattle and sheep, will find it to their advantage to grow such crops. Dairymen also should turn their attention this way. At seasons when the pastures fail, they come in very oportunely, and in the winter time, nothing is more relished by stock than such succulent food as a change from dry and often dusty fodder. Crops of this description are easily raised, and with proper implements and good methods of culture, the labour connected with them is nothing like so great as many people erroneously suppose it to be.

THE VALUE OF TOWN SEWAGE.—In his account of the consumption of 35,000 tons of London sewage in 1867 at the Lodge Farm, Barking, Mr. Morton has the following remarks:—"I believe we have proved that every hundred tons of sewage used during the past year have actually produced, under circumstances of average favorableness, one ton of grass over and above the quantity needed to pay an ordinary rent and an ordinary farm labor bill."

Canadian Natural History.

The Skunk.

(Mephitis Americana.)

Among the Carnivora there is a well-defined family that are distinguished by their quick and active movements and by the special adaptation of their long and flexible bodies for insinuating themselves into narrow and tortuous passages in search of their prey. This is the weasel family, of which the principal specimens in this country are the mink, the skunk, the weasel, and marten. The first of these has already been described in the Canada Farmer; the second is the subject of the present notice, and the accompanying illustration, the latter copied from a specimen in the University Museum. Almost every one in Canada who lives in the country has either seen the animal, or knows something about it by means of another sense than that of vision, and if he has ever smelt the creature, we venture to say, will never forget it. Nearly every member of the weasel family is distinguished by a strong odour, but the skunk is in this respect pre-eminent. The offensive, pungent, and sickening effluvium of this animal is not, however, at all times emitted, though we doubt very much if the creature is ever sweet. The source of this peculiar odour is an oily fluid secreted by small glands near the root of the tail, and capable of being ejected by the animal at pleasure in a small stream and to a considerable distance. A few of its near relations possess, though not in an equal degree, the same peculiar means of defence; and a similar instance is furnished by a marine animal very unlike the skunk in every other respect, namely, the cuttle-fish, which when attacked or in danger, baffles its pursuers by emitting in very considerable quantity an inky fluid, serving not only to deter pursuit by its offensive nature, but to envelope the animal in darkness, and thus afford the means of concealment.

In general form and appearance the skunk possesses the usual characteristic conformation of its tribe. It is about eighteen inches long, tail included. Its head is small, the snout short, the ears small and rounded. The fur is coarse, and of little or no commercial value. The tail is long and bushy. The color is subject to considerable variation; but the general shade is black or dark brown, relieved by one or more distinctly marked stripes of white. The fore feet are strong, furnished with five stout claws, well adapted for burrowing. The legs, like those of all its family, are very short.

Its habits are nocturnal, and it feeds principally on mice and other "small deer," being specially fond of the poultry yard, where its depredations among the eggs and young chickens are much dreaded. During summer the windows of cellars are sometimes left open for the sake of coolness, and if not protected by wire gauze or some similar covering, the creature is apt to make a prying and predatory visit into the house. Woe betide the inmates if they attack it while under their roof. The house would retain the horrid stench for weeks afterwards. The safest plan is to let the animal alone, and it will quietly take its departure. Dogs, unless they are the veriest puppies or trained veterans, will seldom attack it, and if they do, are almost certain to receive such a discharge of the fluid artillery over their bodies as to render them for a long time afterwards intolerable to all about them. Some dogs, however, acquire the art of killing it instantly, by a sudden spring and grip before it has had time to emit its offensive liquid. It is said also that if the tail be held down, or the animal be suspended by that member, it is deprived of the power of ejecting the pungent secretion.

It is usually of a peaceful and quiet disposition, and only when attacked or irritated does it bring into requisition its peculiar means of defence. It is, moreover, notwithstanding its ill odour, of some use to the agriculturist, destroying a great number of noxious insects, grubs and small animals, whose depredations would otherwise seriously affect the farmer's crops. It is rather a graceful-looking animal, and, confident in its power of self-protection, will allow and almost invite a near approach; so that strangers to its habits are not unfrequently allured by its apparent docility into an attempt to capture it. The consequences baffle description. A friend received a visit from a travelling pedler in Illinois, who had just met with such an adventure on the prairie, having encountered and tried to catch, he said, "such a pretty little black and white creature, with a bushy tail." He wanted accommodation, and our friend's hospitality was sorely put to the test. The pungent secretion which the animal employs for its defence is said to possess valuable medicinal virtues as an anti-spasmodic. Its sickening and offensive odour must, however, prevent its use to any extent. Mr. Wood, in his Natural History, relates the case of a minister who was in the habit of using it, not internally, but through the medium of his olfactories, as a remedy for spasmodic asthma, to which he was subject. For this purpose he carried about with him a small quantity in a smelling-bottle. On one occasion, feeling his breathing oppressed whilst preaching, he had recourse to his usual remedy. Whether he obtained the desired relief is not stated, but the effluvium which pervaded the church as soon as he removed the stopper of his smelling-bottle speedily dispersed the congregation, and saved him the trouble of finishing his sermon. Strange as it may seem, it is nevertheless a fact, that the flesh of this animal is used as food, and is said by those who have not been deterred by the natural prejudice entertained against a beast so odoriferous, to be sweet and palatable, resembling somewhat the flavor of roast pig. On the whole, however, while we would give the creature all credit for any service he may render, we think he can be well dispensed with either from the larder or the pharmacopœia.

How to Skin a Bird.

To the Editor of The Canada Farmer:

Sir,—Seeing in your journal occasional enquiries concerning the best methods of removing and preserving the skins of various animals, I venture, having some experience in the art, to send the following directions for skinning any bird of moderate size, such as a wild pigeon.

When you have shot such a bird, which you intend for stuffing, first examine the wound, not by pulling off the feathers, but by gently putting aside the feathers right and left with your fingers, and by blowing into them. Then stuff the wound, throat and nostrils, with tow, cotton, or rags, and wind a small quantity round the bill. Have a moist sponge with you to remove any spots of blood that may be on the feathers. Take the bird by the legs to the place where you intend skinning. Lay it on a table, on its back, with the feet from you, and the head towards your left elbow. Separate the feathers on the breast bone to the right and left; pull off the down; then cut through the outer skin and no further, with a sharp knife. Cut from the beginning of the breast-bone to the vent. Have a little powdered chalk by you, so that when you have skinned a part of it you can dust the skin with chalk, and it will not adhere to the flesh when you leave off. By using a blunt stick or the handle of your knife you can skin to the back. The thighs should now be pressed inwards, and the skin turned back so far as to enable you to separate the legs from the body at the knee joint. The skin is then pulled downwards as low as the rump, which is cut close by the insertion of the tail, but in such a manner as not to injure the feathers. The skin is now drawn upwards the length of the wings, the bones of which must also be cut at the shoulder joints. It is then pulled up until all the back part of the skull is laid bare, when the vertebræ of the neck should be separated from the head, and the rest of the body from the skin. You next must grind an iron teaspoon sharp, and remove the brains from the skull bone; and by breaking a few tender bones inside of the eyes, you can take them out by pressing them inward with your fingers. The whole of the flesh is now to be removed from the under mandible, also from the head, wings, legs, rump, and the cavity of the skull filled with cotton or tow. The whole inside of the skin, head, &c., must now be well rubbed with arsenical soap, spirits of turpentine, or the solution of corrosive sublimate, then the skin inverted and hung up to dry. Pack in white paper, with a little powdered camphor, to prevent the insects from destroying the skin.

A. B. B.

Curious Freaks of Birds.—At Cornwall station, and within a few feet of the platform at which the trains arrive, a robin has built a nest on a tree on which the leaves are only budding. It is now sitting on its eggs, undisturbed by the traffic, the whistle of the engine, or the noise of the cars. But this conduct is not singular in the case of the Cornwall birds. A few years ago one built its nest on one of the ties of the railway bridge over which trains pass constantly, and there it reared its family respectably, until they were of an age to get on the fly.

Mammoth Pigeon Roost.—The *Commercial* says: A gentleman who has just returned from Pennsylvania, informs us that there is a pigeon roost near Port Alleghany, in that State, some ninety miles from Buffalo, covering an area of fifteen miles in length, by five to six miles in width. Over six hundred Indians and a thousand white men, we are told, were on the ground recently, and cut down much valuable timber to get the "squabs"—doing much damage. Over two hundred barrels of squabs were sent to New York in one day.

Stock Department.

The Circulation of the Blood.

The general character and properties of the blood having been described in a former article, the manner in which it circulates throughout the body comes next under consideration. To understand this it will be well to take a general view of the course of the vital fluid throughout the system, and afterwards consider the subject a little more in detail. In the higher type of animals there is one general plan of the circulation, and a description of that in the human subject will apply to the other warm-blooded animals. The grand motive power in the process is a sort of muscular force-pump called the heart, a hollow cavity with thick fleshy walls, divided into four compartments. From this hollow muscle the blood is forced into tubes, which may be compared to the hose attached to the force-pump; and by these tubes, which divide into innumerable small branches, it traverses the whole body, and is returned by similar tubes, after completing its circuit, to the heart. In this course it has served many most important vital functions, and has consequently undergone considerable change; so much so, indeed, as to be unfit without some purifying process to traverse the body again. Before, then, it is sent once more through the general system, it is propelled into the lungs, where it is exposed to the influence of the air, which in a wonderful manner restores it again to a fit state for performing its functions. It is then returned to the heart, after this lesser circulation, as it may be called, and is ready to perform again the general circuit of the body.

How this double circulation is effected will be readily seen by reference to the accompanying diagram (fig. 1). The heart is here represented, divided into four compartments or chambers, two on each side; and it will be observed that while the two on the same side have a free communication with each other, those of one side are completely separated from those of the other. The upper chambers are the smaller, and receive the blood from the tubes already spoken of, or blood vessels. These smaller cavities are called *auricles*, or little ears, because they are furnished with an over-lapping appendage which gives them a resemblance to an animal's ear. The lower, larger, and more muscular chambers are called *ventricles*. These receive the blood from the auricles, and force it out into the main trunks of the blood vessels. These vessels, or tubes, that convey the blood from the heart, are called *arteries*, from Greek words signifying to contain air; because being always found empty after death, their function was supposed to be that of containing air. Their true office and character were discovered in comparatively recent times, by an eminent physician, William Harvey. Those vessels which convey the blood back into the heart are somewhat differently constructed, and are called *veins*. Intermediate between these is a set of extremely minute tubes which have received the name of *capillaries*. Now, to make the matter plain, let us, even at the risk of a tedious repetition, follow the blood once more in its double circulation through the system and through the lungs. The diagram, in which the course of the fluid is indicated by the arrows, will assist the explanation. Let us commence on the right side. Here the returning blood, having been collected into one large venous trunk, is thence poured into the right auricle, and partly into the larger cavity on the same side, the right ventricle. The smaller cavity is, however, soonest filled, and when it is filled, under the influence of some wonderful nervous energy, it suddenly contracts, and forces its contents into the ventricle. A little may flow back into the veins; not much, however, can return in this direction; for the base of the large vein is surrounded with muscular fibres that, contracting simultaneously with the auricle, very much diminish the diameter of the tube, and a little way back the vein is furnished with valves which effectually stop its regurgitation. Hence, nearly all the contents of the auricle are discharged into the ventricle. This is in turn filled by the additional influx of fluid, and by a forcible contraction of its muscular fibres expels the blood into the large arterial trunk called the pulmonary artery. The return of the blood into the auricle is prevented by a beautiful fringed valve, which is situated in the opening between the two chambers. The delicate membranous flaps of this valve hang flaccid in the lower chamber while the blood is flowing into it, but as

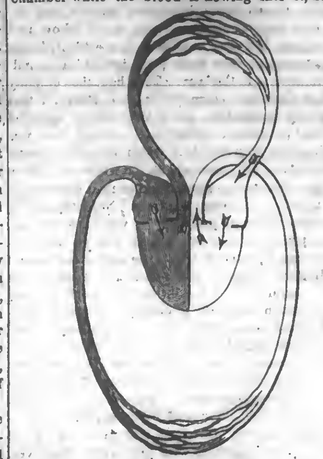


Fig. 1.

soon as the ventricle contracts, they are drawn together across the opening, and effectually close it. The base of the arteries is also furnished with a valve which allows the blood to flow onward out of the heart, but prevents its return into that organ. From the right ventricle the blood is forced into the pulmonary artery, and by means of its ramifications is distributed in the minute capillaries of the lungs, where only the thinnest possible membrane interposes between the vital fluid and the air inhaled by the air passages. The air permeates these membranous walls with perfect ease. The oxygen of the air is absorbed by the blood, while the noxious portions of that fluid, derived from the various tissues in the course it has just completed through the body, are given off into the air, in the form principally of carbonic acid. These changes alter the colour and other qualities of the blood, and render it fit to circulate through the body again. The blood in the veins

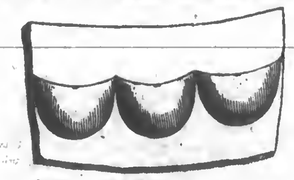


Fig. 2.

and right side of the heart is dark-coloured and impure. After its exposure to the air in the lungs, it is purified, acquires fresh oxygen, and again assumes a bright scarlet hue. It is now collected together by the pulmonary veins, and at length reaches the heart again, and is poured by a single trunk into the left auricle, thence into the left ventricle, and by its powerful contraction is ejected into the main artery of the body, to pursue once more its appointed course through every part into the smallest and most remote capillaries, thence to be collected and again brought back by the branches of the veins into the main trunk on right side of the heart.

The valvular apparatus which prevents the return of the blood from the main arteries into the ventricles, will perhaps be understood by the aid of the accompanying cut (fig. 2). This shows a small portion of the base of the artery, cut open and flattened out, disclosing three small pouches, of a half-moon shape, attached to the walls of the tube by their greatest convexity, and free at one margin. These little sacs lie close against the sides of the artery as the blood is forced outward from the heart. The walls of the arteries are highly elastic, and are distended somewhat by the force of the onward current; but as soon as the action of the ventricle ceases they contract again by virtue of their elasticity, and this will send the blood behind the free margins of the little sacs, and fill them out. Thus distended, they are pressed closely against each other, and completely close the tube. By the combination of these valves the blood is compelled to flow in one direction only. The mechanism is extremely beautiful, and can be readily seen by any one who has sufficient curiosity to examine a sheep's or bullock's heart. The four cavities and the valves between the auricles and ventricles can also in the same manner be submitted to ocular demonstration.

These preliminary explanations have already occupied sufficient space, and extended the article to as great a length as is perhaps desirable. We must therefore defer to another issue some account of the peculiarities of the arteries, capillaries, and veins, the cause of the pulse, and its frequency in different animals, with other interesting particulars.

Discussion on Washing Sheep.

There has recently been considerable discussion amongst our neighbours in the United States on the question of washing sheep, showing, though many still strongly advocate the importance of thorough and careful washing, a growing feeling, nevertheless, in favour of discontinuing the practice altogether. The following report from the *Rural American* of a discussion on the subject at the last Sheep Fair, held at Canandagua, New York, gives the pith of the arguments on each side:—

Hon. Geo. Geddes, of Onondaga, remarked that he had made it a practice to wash the wool on the sheep's back, that he still practised it, and believed there were advantages to be secured by so doing. He also cited the case of a gentleman in Ohio, who had made some experiments going to show that it is better to wash sheep, and sell the wool without deduction or tare, than to shear without washing, and sell at one-fourth deduction. It was the opinion of Mr. G. that we shear too early. He thought that the oil should be allowed to start before shearing. In his case he always put his sheep in a dry, clean pasture after washing, and allowed them to remain there until the wool got dry, and the oil started. He also thought, if sheep were properly handled, there was no danger of losing them by taking cold by washing.

Mr. Holmes, of Washington Co., stated that he formerly held opinions similar to those of Mr. Geddes; but that for the last five years he had been trying experiments, and found that his sheep sheared early did better in May, and the first half of June, than they did when they were allowed to run till that time with their fleece on. In his opinion, if the fleece is taken off the sheep in May, the wool grows right on, and thus by shearing early the annual crop of wool is increased; consequently we cannot shear early, if we wash the wool on the sheep's backs, thereby losing the increased growth of wool. He also stated that there was a growing feeling in favour of purchasing unwashed wool among the manufacturers; the fibre, in their opinion, being stronger than when the wool is washed, there being less "fly waste," although in some cases there is more shrinking in cleansing.

Mr. R——, of New York, remarked that he had long been an advocate of anti-washing. He believed that it was not only a loss of labour, but that there was a loss in the growth of the wool, and that at the same time the health of the sheep was injured thereby. He thought that wool could be bought and sold just as well without washing, and that a dealer could judge of its value as well unwashed as washed. In his opinion, if the wool was unwashed, it would be

more likely to be bought and sold according to its merits—that the time and labor spent in washing the sheep was wasted, at the same time being an injury to them, and of no advantage to any one.

Mr. Hodgekins, of Prattsburg, N. Y., thought that the variation in unwashed wool would be so great, that it would be almost impossible for buyers to discriminate justly, and that there would be no criterion by which we could arrive at a stated price for it. In shipping unwashed wool to market, he found that there was at least thirty-three and one-third per cent. in the expense of getting it there, and that rats will eat the bags in which unwashed wool is stored. He also stated that manufacturers would buy foreign wools, rather than purchase unwashed wools.

Mr. Sweet, of Vermont, was in favour of washing sheep, if those who wash would only do it, when they pretend to do so. He was not in favour of half-way work in this matter, and if the people did not pay more attention to it than they had done, then he would advocate abandoning the practice altogether. He also thought that sheep might be sheared in April, and stand, the cold just as well as the lamb by the side of the ewe.

Mr. Noyes, of Geneva, N. Y., thought, that as the wool trade is at present conducted, we could not sell our wool without washing, and that if sheep were washed well it was an injury to them. He thought that the best and most correct way was to take the wool off unwashed, for buyers will insist on deducting shrinkage; and if we wash well, we cannot compete with these who only half wash their wool.

GOOD WEIGHTS AND FLEECE.—Mr. John Snell, of Edmonton, has sent us an account of the weights of some of his young Cotswold and Leicester stock, which, especially taking into account the unusual scarcity of feed in that section of the country, are extremely creditable to his management. He says:—"Last week I weighed six yearling rams, Cotswold and Leicester, which averaged 276 lbs., the lightest being 251 lbs., the heaviest 285 lbs., making an aggregate of 1,656 lbs. Six two-year-old rams weighed an average of 341 lbs.; the lightest 314 lbs.; the heaviest 368 lbs.; aggregate, 2,040 lbs. I sheared from a Leicester yearling ram 20 lbs. wool; from a two-year-old Cotswold ram 21 lbs.; and from a yearling Cotswold ram 22 lbs. I flatter myself that these weights are hard to beat."

The Dairy.

American Dairying.

THIS mammoth interest, which has grown to such prodigious size in an incredibly short space of time, narrates its own history in the Report of the American Dairymen's Association—a publication which ought to be in the hands of all who have anything to do with dairy business. The Report for 1867 is now before us. It is a well-filled octavo of 119 pages, and contains a vast amount of useful information upon the subject to which it relates. Besides the proceedings of the Association, which are pregnant with suggestions, facts, and the fruits of personal experience, there are papers of a permanent character, elaborately prepared, that are exceedingly valuable. One of these discusses cattle breeding in its relations to dairy farming; another, which we need scarcely say is from the pen of X. A. Willard, gives the statistics of the dairy business for 1867; a third treats of the buying and shipping departments of the business, while a fourth reviews the whole subject of associated dairying. Factory reports are also a noteworthy feature in the volume before us, and furnishing, as they do, a detail of operations and results, must be of great utility to factorymen and others.

The chief characteristics of the dairy interest during the past year seem to have been greatly enhanced production of cheese, and shortcoming as to quality, together with extraordinary fluctuation and depression in the market. While the article was never before manufactured so largely, it seems evident that the average quality of American factory cheese last year was not equal to previous years. The same thing is true of English cheese-makers. Production has been large, but along with it there has been a falling off in quality. These circumstances had of course their natural effect on the market, rendering it very changeful, dull, and low. At the beginning of the year the impression was pretty general among dealers that there would be over-production, and that the market would be flooded. Under the influence of this idea, manufacturers were in hot haste to sell as early in the season as possible, and a large amount of immature cheese, unfit for handling and unripe for shipment, was exported, much of which deteriorated and even spoiled on the hands of the consignees. Goods being thus forced forward and exposed to injury, only one result could follow, and hence great loss was entailed. It is estimated that the dairymen of New York alone lost at least a million of dollars in this way. They had the company of their Canadian compeers in this misery, if that were any satisfaction, since like causes operated here and produced a similar result, though there was nothing like the panic here which prevailed among United States dairymen, and on the whole we believe our factories averaged better prices than did those of our neighbours across the lines. Notwithstanding this depreciation of prices in the wholesale market, retail prices held their own, so that the manufacturers were mulcted in loss to the aggrandizement of middlemen, shippers and retailers. Against this there is no safeguard but in having a weekly return of production, and table of markets, accurately compiled, which being in the hands of producers, will enable them to judge whether to sell or to hold out for better rates. It was demonstrated last year that if American backbone had only been stiff enough to hold the cheese, remunerative prices would have been had. After this bitter and costly experience, it is not surprising that American dairymen took up, at the last annual meeting, with more spirit than ever, the project of establishing such a circular, and that the Canadian association voted to co-operate with them in the enterprise. A very small percentage on the production would pay the expense of such a circular, and the good it would do would be in the proportion of its cost a thousand if not ten thousand to one. But for a stupid "penny-wise and pound foolish" policy, such a circular would have been in existence long ago.

It is a noteworthy fact that, during all periods of uncertainty and depression in the cheese market, the A No. 1 article invariably commands a high figure. This fact speaks volumes as to the wisdom of aiming high in regard to the quality manufactured. Excellence of flavor in cheese is not matter of accident. Care and skill always result in securing high quality. And while the inferior article is of doubtful sale or certain to bring only an unremunerative price, the choice article is sure to be in demand and to be sold at a good profit. How strange it is that this fact, which has stood out prominently in the history of cheese factories from the very beginning of the movement, should have had so little practical effect upon manufacturers. To save a little on first cost, or to avoid trouble, inferiority is not risked merely, but deliberately chosen; for surely nobody is fool enough to expect extra quality without extra painstaking. Patrons are often very censurable in connection with this matter, because of their unwillingness to allow a fair price to manufacturers. Factories managed on the principle of association are often hurt by the niggardliness of members, who stand out for cheap manufacture, and thus render it impossible to procure skilled help. It is very short-sighted policy to save one or two hundred dollars in this way on a season's work, and for the sake of doing this, lose thousands on a season's product. It is becoming every year more apparent that those who are not prepared to take such measures as are needful to secure prime quality in their cheese, might as well make up their minds to quit the business. Many New York factories were carried on last season at a loss, and very few did anything like a good year's business; in fact, none but those at which a first-rate article was made were able to show a decent margin of profit. The practical lesson from all this is obvious enough. Our dairymen must produce a choice brand of cheese, or get very small returns, perhaps none at all, for their labour and capital.

Our American friends acknowledge in their report that the prospects of the dairy business are not so bright as they appeared at one time to be. The opinion has been prevalent that there is no branch of farming so profitable as dairying. It has been regarded by many as a direct and royal road to wealth. But a more sober view of the matter has been inculcated in the school of experience. It is now felt that there has been an inconsiderate rush into this business by parties not favourably situated for carrying it on, and that many have unwisely and rashly changed their system of farm operations in order to go into cheese-making. There seems also ground to fear over-production, a contingency hardly thought of at the outset. But so prodigious has been the growth of this business, that although the demand is very great for the article produced, there is a possibility and a danger of outdoing the demand. The indications are not such as to occasion fright, but they certainly counsel moderation and caution. Farmers who are in a well-to-do condition on a system of mixed husbandry had better be contented, lest they should have to pen their autobiography in similar terms to that of the unfortunate victim of medicine, who was well, wanted to be better, took physic, and died. Mankind will probably eat cheese while the world stands, but the earth is not made of green cheese, any more than the moon. We must have beef and potatoes, bacon and greens, ducks and green peas, as well as bread and cheese, and industrious, thrifty people, stand about an equal chance of making their fortune out of any of these commodities. It must be borne in mind, however, that good management and hard work are the conditions of success, whatever may be the line of activity chosen. "In all labour there is profit," but profit without labour is the dream of the speculator and the rogue, not the role of the honest and the diligent.

Cheese-Making—A Plea for Reduction in Price.

To the Editor of THE CANADA FARMER:

SIR,—Again I take my pen in hand to address you on the subject of cheese-making. As I intimated before, many farmers in this county will not sell any more milk, because it does not pay. With your permission, I will lay before your readers a few of the arguments adduced to show why milk-selling does not pay. In the first place, it is argued (and with reason) that two cents per pound is too much to pay to the manufacturer for making up their milk, and that the manufacturer has the largest share of the profit. Allow me to illustrate it. A man sells milk from a certain number of cows all summer, and in the fall the cheese sells probably for eight cents per pound. He has to pay two cents out of that sum to the maker, thus giving the maker one quarter of their milk. Add to that the drawing, which costs from a dollar to a dollar and a half per cow, and the waste consequent on drawing, and you will see that it costs the farmer about three cents for every gallon of milk that he sends to the factory, thus leaving the seller about five cents per gallon for his milk, a sum which all will allow is too low. Another argument brought forward is, that it costs more to keep the cows than their milk realizes. We will suppose a case:—A man in the spring buys, say ten cows, for which he pays thirty dollars apiece; he keeps these cows all summer, and in the fall he gets (as I have shown before) about five cents per gallon for the milk. Each cow, on an average, will give two gallons per day, which would be ten cents per diem. For the ten cows, this would be one dollar a day, or twenty-six dollars per month, which for the six months would be $156. If he sells them in the fall, he will probably get twenty dollars apiece, which would bring him $200; add to that the $156 for the milk, and we have the sum total of $356; the cows cost him three hundred dollars, leaving him fifty-six dollars for their pastures, his trouble in milking, paying for the care, etc. The ten cows would take from fifteen to twenty acres to keep them all summer, thus giving him $56 as the sole product of twenty acres of land. Now you will naturally enquire, is there no remedy for this? I answer, there is. Let the manufacturer make it up for one cent and a quarter per pound, or even one and a half cents, and at that rate he will still make a handsome income. I do not mean to say that he can make money at that rate unless he has the milk of at least 300 cows. He should at the least have one cent per pound clear, after paying all his expenses; and I think if they were to manufacture at that rate they would satisfy their patrons and make a handsome income for themselves. Allow me to carry the argument further. Supposing the farmer keeps the ten cows over winter, he will have to feed them, at the least, two tons of hay apiece. Now, allowing twenty dollars for the hay (the price last winter), you will see that the summer's milk does not pay for their winter food. I have heard numbers say that if they were to give away their cows in the fall and sell their hay, they would have been better off in the spring than they were. Now, some will ask what are farmers to do? Give up selling milk and go back to farming? I answer, farm and sell milk. Let a man keep as many cows as will eat up his rough feed, and let him manage so as to raise enough grain to produce straw enough to feed them in the winter, for it is a well known fact that good barley and oat straw is as good feed as a great deal of the hay used for the purpose. Then let him feed say half a ton of hay apiece, with straw and some roots, and I maintain that his cows will come out in the spring in better order than if they had been fed on poor hay all winter, and then milk-selling will pay him about as well as farming, with far less work. I hope we may see a few, at least, of the changes which I have mentioned brought about before long.

Norwich, May 13th, 1868. CURTENIUS.

NOTE BY ED. C. F.—Having allowed the advocates of the higher rate of remuneration to the manufacturer the opportunity of expressing their views in these columns, we cheerfully accord the same privilege to our correspondent and others who think with him. It is a matter in which there is naturally some difference of opinion. In order to allow the manufacturer to make at a lower price, it is necessary he should have the milk of a large number of cows, a condition which will be rendered impossible by erecting factories too near together. A judicious system of feeding, both in summer and winter, especially a more liberal use of green crops raised for dairy purposes, instead of trusting altogether to pasture, will both increase the quantity of milk and improve the condition of the land.

Early Cut Hay for Milch Cows in Winter.

AT a meeting of the Craftsbury (Vt.) Farmers' Club, Feb. 11th, Mrs. A. Scott presented a churning of butter—*eleven pounds, from the cream of one cow in six days*, nice and yellow as that made in June. Mr. A. Scott read a paper on the time of cutting grass, as follows:

The best mode I have found yet to cut hay, is to commence about the 10th of June and finish about the 25th of June if I can; sometimes the weather prevents, so I cannot finish until the first days of July. The quality of hay cut the last days in June is not worth but about one-half as much as hay cut previous to the 25th of June. When the herdsgrass puts out its heads in the last days of June, three or four inches of the buts have become hard and woody, and the nutriment of the grass is rapidly leaving the stalk. Hay cut the last days of June and the first days of July, I do not feed my cattle until I am obliged to.

The grass cut from the 10th to the 25th, produced the butter presented you this evening by Mrs. Scott, from an ordinary cow, and quite under-sized. This cow consumes 20 pounds of hay per day, and at $20 per ton costs twenty cents per day, and yields in return one and one-half pounds of butter per day, as that will be about the average for the winter. Then deduct the one-half pound to pay for milking, churning, &c., and you have one pound of butter worth fifty cents, and safe any time at forty cents, for twenty cents' worth of hay. (Vermont prices, American currency.)

Now will you consider the above figures, and make up your minds to lay aside old customs and adopt a better one, that will be sure to give you two to one, instead of feeding twenty cents' worth of hay per day, and getting nothing in return but your stock in the spring, without any gain?—*Rural American.*

Poultry Yard.

Pigeons.

READ BEFORE THE ONTARIO POULTRY ASSOCIATION BY LT.-COL. HASSARD.

For the last two or three thousand years certain pigeons have been kept by man as domestic creatures. Time will not permit me to give illustrations of this fact, though the task would otherwise be easy; but in mentioning it I wish to save the pigeon fanciers from the contempt, if I may use the expression, which is often manifested towards them. Many of us are pigeon fanciers, and we have outlived the time when a pigeon fancier was associated with costermongers, pugilists, rat-catchers and dog-stealers; and if you scoff at the fancy, how do you treat the fanciers of tulips, piccotees, dahlias, &c.? for roots of which twenty guineas are often given.

There are many places in which pigeons may be kept by artisans and others, when they have no means, in place or purse, of keeping fowls. After a hard day's toil in a rolling mill, or other similar occupation, would you not rather see a man go into his loft than into a bar? One may bring him profit, the other will not, although you may perhaps suggest against this position, that Bob in "Dombey and Son" was made to exclaim that "it was all them birds, and no good ever came of them;" and his expression "What I flowed?" in reply to an announcement that his friend had gone, could only be appreciated and understood by a fancier of pigeons. Pigeons are also of use to the farmer, both as furnishing variety in diet, and in destroying a vast number of noxious insects.

It is not my intention to go into a description of the different varieties or their derivation; this is amply explained by my esteemed friend, Mr. Tegetmeier, in his last new work; but I propose making a few practical observations on the best way of keeping pigeons in Canada. I do not think the farmer would desire to have a large dovecote on his farm, as in bye-gone days; but in France Pigeons are encouraged still as keeping down weeds, the seeds of which they greedily devour; and as they do not scratch, anything properly sown is safe from their attacks.

I find that in both Ontario and Quebec the climate seems to suit the birds. In the severest winters many may be seen about the stores at Quebec; and provided they get shelter at night under a roof, the cold does not seem to annoy them. This applies to the common sorts.

I can also state, from practical experience, that I have not found the high fancy birds suffer from cold if kept as they must be in a loft or shed, over a stable, or any building where they can perch, secure from draughts of wind and wet. My carriers are the very best English strains. I often had sick birds in England from their being so highly bred. I may say that I never had a sick bird in Canada; and the eye disease, which so often attacks carriers, has but very slightly appeared, and that only once, lasting a couple of days, in a very heavy-eyed specimen.

Pigeons require to be kept very clean; to have in summer a large shallow pan (out of the loft) to bathe in; a supply of salt or a mixture of loam earth, mortar and salt, with seeds of cummin, in order to make it perhaps more attractive, although the salt is what they like—a taste inherited from the old stock, the Rock Dove—and a hopper of food always at hand. In this particular they are more easily kept than fowls. They do not nauseate over their food, and will always go and help themselves when hungry. To keep these birds successfully, the lofts must not be over-stocked. This is of immense importance, and each pair should be provided with its own house, of two bed-rooms and a sitting-room, with the means of keeping them in at pleasure. Pigeons, when once habituated to a box, will always keep to it; hence you always know where to find them. I do not mean to say that they will not appropriate an empty pen, but this must be kept closed until wanted. After trying many plans, I have found the best to be a box three feet long, or frontage; two feet deep by two feet six inches high. These dimensions are for the larger sort of pigeons, such as penters, but all pigeons require, if we would produce successful results, more room than is usually alloted to them.

The three feet frontage has ten inches to one foot taken off for nesting places, leaving a space about two feet square for a day room. The nesting portion should be divided between top and bottom by a shelf. The partition across should not extend to the back, but leave space for the birds to get in behind. Each pair has thus two nesting places. The large apartment must be provided with a wire door, capable of being opened at pleasure, and the nesting places with a solid door. The box, complete, has the appearance of the old-fashioned rabbit hutch familiar to most of us. This construction has the advantage, that when a pair have young about fourteen days old, they can be removed to the lower compartment, leaving the upper free for another nest; so that the young can not get up and spoil their eggs. A pair of birds can be easily shut up, and having plenty of room, will do well there for some time.

Nest pans, made of earthenware, about eight to ten inches diameter across the top, and three inches high, sloped inside like a bowl, should be provided; two to each pair. They are the best appliances for nests, being easily kept clean. A little sawdust should be put in each, and with what straw the birds pick up, a good nest is made. These pans also have the advantage that, to inspect eggs or young, you merely take hold of the pan and remove it from the box without handling the birds. This construction also enables you to compel the pigeons to remain in the nest-place when you wish it. For example, supposing a stray egg is laid on the floor, you watch the hen that sits over it, catch her and her mate, and put them into the box. She will lay her second egg on the third day after the first, in the box, and will sit on it, and by returning the first egg the same evening, both are saved.

Pigeons sit seventeen days after the second egg is laid. The first egg is laid about 4½ to 6 o'clock, say on the first of the month; the second egg at 1:30 to 2:30 on the third of the month. On the twentieth both youngsters should be hatched or chipping the shell. Time will not allow me to enter into an explanation of the assistance that may be safely rendered when a youngster remains stationary in the egg. Messrs. Tegetmeier's, Eaton's and other works will assist you in this, but as a rule let the birds alone.

The cock and hen having sat by turns, will also feed by turns. You supply the food, they will do the nursing, and save you much anxiety and trouble. In a paper like the present, it is impossible to give the result of my experience in pigeon-keeping over a period of forty years. Each gentleman must select his own fancy; but if fond of a good pie, he will find Runts, weighing two pounds and over each, fill a pie quicker than any other sort. It is scarcely necessary to say much in regard to the food of pigeons. Almost any kind of grain is suitable for them, and great advantage will be derived from variety in their diet.

RECENT IMPORTATIONS.—Several enterprising members of the Poultry Association have recently imported very valuable birds from England. Mr. Howard, the president of the society, has added to his stock some splendid specimens of various breeds; among the rest, a variety known as Andalusians, which he finds excellent layers, and apparently hardy. These birds were expected prior to the last Exhibition, but did not arrive in time. Mr. Howard has also some magnificent game birds among his latest arrivals from England.

Correspondence.

The Agricultural Bill.

To the Editor of THE CANADA FARMER:

SIR,—We all acknowledge the difficulties of framing a measure that shall not be open to some doubt or question; with even the best intentions, and the use of the plainest language, it is impossible to legislate for all cases. Your correspondent, "A Secretary," in your last, and you, in your explanatory note, came very near touching upon a point unprovided for in the New Agricultural Act, but which as it affects one of the most flourishing Township Societies in Ontario, I have been requested by several brother members to propound to you for solution or discussion.

You and the majority of your readers are aware that the Blenheim Agricultural Society has existed for many years, and won for itself a reputation second to none around. The show has invariably been held at the capital of the Township, Drumbo, which, as reason would direct, is the proper place, being situated exactly in the centre. The fixing of the show here, however, be it observed, is by the rules always determined at the annual meeting by the majority of the votes of the members. Two years ago, a number of members, living in the remote north and north-west corner of the Township, feeling aggrieved that the show was not held at Plattsville, resolved to establish a society and a show of their own. Whatever may be said of the *propriety* of this step, no one can deny that these gentlemen were at perfect *liberty* to form a society to please themselves. But here comes the query. Had these parties any legal authority to call their society by the name of an adjoining township—to withdraw the principal number of the members from the Blenheim Society, and, under an assumed name, to hold their show *in* Blenheim, and (most important of all) to draw the Government allowance as an independent company or society? I cannot believe that it was the intention of the framers of the new Bill that the public money should be frittered away in such a manner, or to encourage the formation of petty societies out of every dissatisfied minority. Better far that our Township societies should be abolished altogether, or amalgamated into the County Show, as has been done in some instances. The operation of such procedure as I have briefly detailed above, must be such as to make *two poor shows out of one good one*, and so contagious is the example of insubordination and discontent, that actually the formation of *another* or *third* show in the Township was contemplated this year. A meeting was held in the South, and committee, chairman, &c., appointed. I am glad to say, however, that the Southerners have had the sense to see that they were venturing on dangerous ground, and attempting something that might lead them into a very foolish position, and therefore *that* society is meanwhile in abeyance. What we want to know is, whether the Northerners are not proceeding upon equally illegal grounds, to say nothing of the sad blow they are inflicting upon the best interests of agriculture in the east of Oxford.

BLENHEIMENSIS.

Blenheim, May 21st.

NOTE BY ED. C. F.—We do not feel at liberty to pronounce a definite opinion on the case submitted in the foregoing communication, but would suggest that the circumstances seem to call for a full explanation of the matter, and an appeal to the Department of Agriculture itself. Without knowing more than we do, we are not justified in condemning the action of the seceding parties, but must confess that they appear to be violating the spirit at least of the Agricultural Bill. Parties living in the north of the Township of Blenheim, would certainly be at liberty to subscribe to the society of an adjoining township in preference to their own, if it suited their convenience. But if a large proportion of the members, especially those who originated the society, are inhabitants of Blenheim, it is a mere evasion to assume the name of another Township, and if the society were *bona fide* composed of inhabitants of the adjoining Township, it appears to us that they are transgressing at once the rules of courtesy and the spirit, if not the provisions, of the Act by holding their show in Blenheim.

Besides the above communication, we have received two others containing queries in regard to the new Bill. The first, from R. G. F., Oldboro, is to the following effect in reference to

"AUDITORS.—"Will you have the kindness to inform me if it is the intention of the law that auditors are to be appointed to audit the Treasurer's books for the annual meeting of next year or not? If so, how will the auditors be appointed; through a special meeting of the members, or has the Board of Directors the power to appoint them?"

Sections 37 and 43 of the new bill provide for the appointment of auditors for the year 1869 and after. For the current year, 1868, the accounts of which should, of course, be made up and presented at the next annual meeting, auditors should have been appointed at the general meeting in the beginning of the present year. If they had not been so appointed, we presume it is in the power of any general meeting to make an appointment, and for this purpose the time of the fall show would be a convenient opportunity. It is not customary for a Board of Directors to appoint auditors.

The other communication is an enquiry respecting THE RESPONSIBILITY OF TREASURERS. A correspondent from Bothwell asks, "Can yon inform me if the *surety* of a Treasurer of an Agricultural Society is held responsible for a longer term than one year, or is he responsible until he notifies to the contrary?"

The Bill makes no provision for Treasurers' sureties or bonds. The office is usually held gratuitously, and a bond does not seem called for under the circumstances. Were the Treasurer a paid officer, it would be very proper to exact the usual legal security.

Farming in Quebec.

To the Editor of THE CANADA FARMER:

SIR,—Your visit, editorial, and illustrations have awakened very considerable interest among your subscribers in this Province. And though Compton, Hillhurst Farm, and M. H. Cochrane, Esq., have deservedly gained your first attention, we can assure you there are many other places, persons and operations which will richly repay editorial inspection.

Farming here differs from farming in Ontario about as much as the provinces differ. Not to speak of the French and their generally inferior modes of culture, we have in the Eastern Townships a population as mixed as in Ontario, with, however, a larger proportion of the American element.

Let me indicate a few particulars in which, I think, Ontario might profit by their example:

1st. They are not such slaves of the soil. They work, but take time to read the papers and circulating libraries. You meet a sharp intelligence everywhere.

2nd. They do not grow so much grain, nor make money so fast as in Ontario; but they take better care of their *stock*, and see that their farms are not exhausted. They laugh at the idea of cattle living on straw stacks in open yards, and cold sheds. Even their young steers must have plenty of hay and a warm stable. The drover or the butcher will be along, and stock must be saleable. I find the best farmers are very particular to have *no seed in their hay*. They cut the grass before the seed forms. Any one who will examine a carrot or a stalk of wheat *after* the seed *is formed* may learn how exhausting is the process; and thereafter have *dried grass* instead of exhausted hay, to give his cows sleek coats and full udders.

3rd. This is quite a country for *potatoes*. The soil suits them. They sell at about an average of 50c, and pay as well as anything. We never see them plant in a *deep* furrow, but *on the surface*, or in a furrow not more than *two or three inches* deep. The results prove their wisdom. This year many of the new American varieties are being planted—Sebec, Early Gooderich, Garnet Chili, Harrison, &c., &c. There is one new kind that I think surpasses all the rest, "the Greys," as they call them here, a roughish, grey skin, white and mealy, and as sound and heavy now as if dug yesterday. Ontario planters would do well to obtain seed from this more northerly latitude.

4th. They do not cut away all the trees. By wayside, on hill sides, and almost everywhere possible, trees and shrubberies are growing. We have beauty and shade—shelter from sun and from storm. Better still, we are not parched with drouth. Often as I pass through Ontario, with a quarter or half of every farm lying in naked fallow, weeds and shrubbery mercilessly burned with fire, and the land parched with drouth, do I wish in my heart those Western men could take a July ramble through the green oases of the

EASTERN TOWNSHIPS.

Compton, May 11th, 1868.

Farm Notes.

A CORRESPONDENT, "W. B." of Home Cottage, Chingnaconsy, sends us the following communication giving the results of his own experience:

In raising grain it is of the utmost importance to adopt the best method of collecting the largest amount of manure possible on the farm itself, which is altogether cheaper and better than buying and hauling from a distance. This I have been able to accomplish to some extent by keeping and wintering as many cattle as I can feed, by raising turnips, and feeding all the hay grown on the farm to my stock. Occasionally the expense may seem to exceed the profit, but in the end the plan is sure to pay. I find it advantageous to let my clover be cut only one season, and have the after grass eaten on the ground, after which the field is ploughed up and sowed with peas, to be followed with barley or spring wheat. In this way you can seed a ten acre field every year with a bushel of clover seed, costing say from five to six dollars a bushel. You get double the quantity of hay or clover from the same quantity of land; whereas by cutting meadows several years in succession you get in the second year but a poor crop, and still worse the third year. My advice is, keep ploughing and seeding down; never mind the expense; it will pay at last. My motto is to raise all I can within the farm itself, without having recourse to artificial or foreign manures.

The following report of my crops for last year may perhaps be of some interest to your readers. From twenty acres of fall wheat, 600 bushels; one acre of spring wheat, on fallow, 20 bushels; 10 acres, on stubble, 100 bushels of spring wheat. This crop was somewhat injured by the worm, and much deteriorated by an admixture of poor seed. Five acres of barley yielded 100 bushels. From fourteen acres of peas, on clover sod, I obtained 350 bushels; thirteen acres oats, top-dressed with plaster, about 30 bushels to the acre. Of turnips, in consequence of the very dry season, the crop was very light. Ten acres of a first crop of clover yielded two tons to the acre—the land being in good order and plastered. Another ten acre field, not in as good condition, produced one and a-half tons to the acre. I use plaster plentifully, applying it on a dewy morning. I generally fallow twenty acres a year. This is a 150 acre farm, of which 130 acres are cleared. In another communication I will give a report of my expenses and profits on this scale, and also some account of my early experience, and how I commenced farming in Canada.

Order and Cheerfulness.

To the Editor of THE CANADA FARMER:

SIR,—We find a class of farmers who are always grumbling and scolding, continually out of humour with everything and everybody about them. If a day is rainy or stormy they are restless and discontented, thinking it so much time lost, as though they had no mind to cultivate. Everything is hurry! hurry! hurry! from New Year's to Christmas. The work is so managed that it encroaches upon the Sabbath in different ways. The hired help comes in for a large share of his unkind words, looks and actions, while his wife and children are not neglected in his onslaught. Everything goes wrong with him; surely he must have been born on the wrong day of the week, and the wrong month of the year. The cattle are always breaking over his fences; his crops are late, and consequently light; his stock are unfortunate, or his family are subject to all the ills which flesh is heir too. Irritability seems to be a sort of second nature to him; he thinks that he could not get along without grumbling and scolding; indeed it is hard for a farmer to be cheerful and pleasant when everything is going wrong about the place. It is true there are some who have become so habitually used to confusion that it is taken quite calmly. Order would seem as much out of place with these few as a snow storm in summer.

But to a person who wants to be a successful farmer this irritation is very unpleasant; it troubles him day and night, until at last he becomes what is commonly known as "broken-down." The want of any order in their work causes a great deal of this disatisfaction and grumbling. When a farmer starts business he should make order his motto; do everything in its proper time, and much of this hurry would be avoided. Use the head more than the hands, plan the work, study the diseases of the stock, etc., and much less displeasure will follow. For if you have the satisfaction of having done your part well, i.e., everything in the right time and proper manner, then you will have less cause for discontentment. Never grumble about things which you cannot help, but resign yourself cheerfully into the hands of Providence.

It may be said that some people are naturally irritable. This is not so much the case as it is a *habit* which they do not try to break through. Now, if farmers would use their heads more and hands less, it would be better; if the work cannot be accomplished, employ more hired help; manage the work properly; superintend the labour, marketing, care of the stock, etc., then much of this confusion would be avoided. Fallows would not be neglected until it is too late to destroy weeds; haying would not interfere with harvesting; the roots would not be left until they are frozen fast in the ground.

How many young men have started on a good farm, well stocked, and have worked hard, but for lack of a little management in their business, they have no more than made a bare subsistence. Keep cool—even in summer—don't let every small inconvenience annoy you, study the cause of the annoyance, then set about remedying it, and be careful to prevent its recurrence.

Ontario. CULTIVATEUR.

Balance Sheet Addenda.

To the Editor of THE CANADA FARMER:

SIR,—In the Farm Balance Sheet I sent you, published in your issue of April 1st, you have the item "Feed" repeated. The second "Feed" should have been "*Seed*." In referring to the copy, I find the word rather blotted, and difficult to be deciphered, hence the mistake. The repairing and blacksmith's work were certainly very heavy, and I trust, nay, am sure, will be much diminished this year. Labor, &c., in preparing the land, included hired man's wages and board. I paid him as wages $150 a year; but being a married man with a family, in lieu of boarding him, I gave him $50 a year—in all $200, a cottage, half an acre of land, and some other privileges. I discharged him at the end of the year, so I shall save all, or nearly all that amount. I had all the feed to buy for the stock from the day I entered upon the farm until I gathered the harvest, except grass. I kept about 40 bushels of wheat for home use, and fed to the stock the difference of peas, oats, and barley, between what I had reaped and what I had sold. Also, the house was well supplied with vegetables from the kitchen garden, but of this I kept no account.

I had under cultivation—

Wheat	30	acres,	produced	330 bushels.
" Barley	6	"	"	150 "
Peas	6	"	"	100 "
Oats	5	"	"	80 "
Peas & Oats	2	"	"	2 tons.
Roots	2	"	"	100 bushels.
Pasture	10	"		
Garden & Orchard	4	"		
	65	acres.		

This is the extent of my cultivated land. I have since cleared seven acres. I have five acres of this in fall wheat, and shall have two acres in oats.

I have now corrected the errors, and supplied the omissions referred to by you, and hope to have the pleasure of sending you a very satisfactory balance sheet next year. ULMUS.

NOTICE TO SECRETARIES OF COUNTY SOCIETIES.—The Secretaries of County and Electoral Division Societies are requested to send without delay to Mr. Edwards, of the Bureau of Agriculture, a correct list of their officers, (President, Treasurer, and Secretary), also the names of the officers of the Township Societies associated with them, unless they have already sent in the names either to the Bureau or Board of Agriculture. An *immediate* attention to this matter is particularly desired, in order that the official list of Agricultural Societies may be completed as soon as possible.

The Canada Farmer.

TORONTO, CANADA, JUNE 1, 1868.

Monthly Fairs.

It is gratifying to find that these institutions are being established in various parts of the country, and that there is a prospect of their coming into vogue at all our leading market centres. They have many advantages. By fixing a time when cattle and other farm products will be exposed for sale, they attract buyers, and render disposal well-nigh certain. Prices are pretty sure to find their just level. Business is thus at once facilitated and regulated.

The fair also presents an opportunity for the sale of a variety of articles not strictly agricultural products. Farmers require furniture and a multitude of things which can be exhibited to view on market day, and sold. The regular merchants always expect to do a "big business" on fair days, and itinerant merchants, pedlers, and auctioneers, not to say medicine vendors, reap a fine harvest at that time.

Implement-makers have an opportunity of exhibiting the articles they manufacture to the numerous farmers brought together by the fair; and we believe a large amount of business of this kind is done where these institutions exist. They come to be township and county shows on a smaller scale, and there is often a goodly array of tools and implements on the fair ground. They also afford facilities for the exchange of seed, and for a variety of transactions best attended to when a large number of people from various localities are met in one place. Many appointments are made, and a diversity of matters disposed of on "fair day."

The above and similar advantages are not without their accompanying drawbacks. People are very apt to be imposed upon by unknown and irresponsible persons, who bring to market wares that, like the noted razors, are made to sell. These travelling merchants and auctioneers are voluble in praise of the articles they vend, and too many receive as perfectly true the statements poured forth so glibly. The utmost caution should be exercised in purchasing of such people. This is a free country, and there is no way of restraining from business the sharp practitioners now referred to. It only remains to put the public on their guard against imposition. Generally speaking, it is better to buy of an established merchant, who has a reputation to maintain, and a business to build up, and whose interest as well as duty it is to deal honourably with his customers. Unless one is a judge of goods, and feels quite sure as to their quality and value, it is a great risk to buy under the circumstances in question. Many a supposed bargain proves to be a "sell," and many an imagined cheap purchase turns out to be dear-bought experience. In this connection the public need to be warned against the unprincipled quacks who are apt to infest fairs. These beings go into affecting descriptions of the "ills that flesh is heir to," picture the pains and aches felt by the parties they address, and urge on them some nostrum which is a sure cure,—"all for the small sum of twenty-five cents." If these much-extolled specifics were harmless, the loss of money by their purchase would be an item worth considering; but in many cases they are positively injurious, and instead of curing, sow the seeds of disease. The administration of medicine requires a skilled and experienced hand. A vast amount of mischief to health is unwittingly perpetrated by dosing in the dark. People should find out what really ails them, and be sure they have got hold of the right remedy, before they venture on taking physic. It is the height of folly to swallow medicine at random, or to put health at the mercy of quacks, whose only object is to make money by the sale of their wondrous cure-alls.

Fair-days are often marked by more or less free indulgence in stimulating drinks. Old friends meet, new acquaintances are made, and alike the old and the new friendship must be cemented by "a cup o' kindness," in which, alas, an enemy lurks that "bites like a serpent, and stings like an adder." Bargains are usually so hard as to need softening by means of alcholic moisture. It is a sort of holiday time, and why not be jovial? In short, the excuses for indulgence are very plentiful on fair-day, and many who come to market sober, go home drunk. Intemperance is one of the worst evils under which the country groans, and we fear much is done to promote it at these monthly fairs. Why are men such fools as to put that into their months which steals away their brains, and not their brains merely, but their characters, their all?

It appears to us that these fairs might be made promotive of much agricultural improvement if the rights means were taken. Why could not some time be spared for a farmers' club to meet on that day? Enough time is wasted, if not worse than wasted, in the tavern and elsewhere, to suffice for this sort of thing. What useful discussions might be had about the weather, season, crops and markets, if farmers were only so disposed. Merchants, grain-dealers, and millers have their meetings from time to time; commercial men have their Boards of Trade, Exchanges, and Chambers of Commerce. Why have we not arrangements of this kind to protect and promote the farming interest? Almost every class but the agricultural understands and applies the principle of combination for the promotion of a common interest. Some departments of business owe much of their prosperity to the adoption of such measures; and we are convinced that farmers would do well to copy the example set them by men of intelligence and enterprise who move in other fields of activity.

Immigration and Colonization.

MR. JACKSON, Chairman of the Committee on Immigration and Colonization, recently submitted a voluminous report, which, after giving an historical and statistical *resume* of the subject, closes as follows :—

"The system which has been in existence for furthering and aiding immigration to Canada has not been productive of satisfactory results, neither is it, in the opinion of your Committee, adapted to be so under the law which has placed the public lands under the control of the Provincial Legislatures.

"In order to avoid a conflict of authority and to secure the efficiency of any general immigration scheme, it is necessary that there should be an understanding, and consequently co-operative action, between the General and the Provincial Legislatures. In the meantime; and before any such concurrent action can be agreed upon, your Committee recommend that such care and assistance be extended to immigrants arriving seaward, as may be necessary.

"Your Committee recommend a discontinuance of the agency at Wolverhampton, in England, and such a reduction of the staff at Quebec, Toronto, and other agencies, as can be made consistently with the recommendation in the preceding paragraph, with a view to the early re-organization of these agencies.

"As the success of the immigrant depends greatly upon his willingness and ability to adapt himself to the conditions in which success is alone to be expected, your committee suggest that great caution and circumspection should guide any public effort to induce persons to immigrate. While Canada offers health, prosperity and freedom to the industrious laborer and mechanic, she cannot safely assume any responsibility on behalf of persons whose occupations or habits have been unfavourable to self-reliance, or to the practical exercise of intelligent effort.

"Your committee have received a number of letters containing suggestions on the subject of Immigration, and offers on the part of the writers, to place their services at the disposal of the Government, as writers or lecturers on the resources of Canada, in Europe. It is not incumbent upon your committee to express any opinion in reference to the suggestions themselves, or to the gentlemen by whom they are made ; for, if the views to which your committee have given expression, in this report, are in accordance with those entertained by your honorable House, it will be the obvious duty of the Government—in conjunction with the Provincial Governments—to adapt the agencies in Canada and elsewhere to existing circumstances.

"The prospective acquisition by Canada of the fertile lands in the valley of the Saskatchewan and its tributaries, is, no doubt, interesting to thousands who propose to migrate from the mother country to one of its dependencies. In the present state of the relations between the North-west Territory and Canada, no precise plan for its settlement can be recommended, or even considered, by your Committee, but they submit that, without any unnecessary delay, so much of these lands as are fitted for agricultural purposes should be made accessible through British territory, and offered on such terms as will be attractive to a class of settlers who desire to enjoy the fruits of their industry under the security of British laws and institutions.

"Coincident with the construction of the Intercolonial Railway, a large quantity of land, hitherto inaccessible, will be available for settlement. During its progress, the laborer will earn the means of sustaining himself in the early stages of his settlement. The chief drawback to settlement hitherto has been the difficulty of obtaining employment at a convenient distance, and then of carrying produce to market over a long line of almost impassable roads. On the line, and within the influence of the Intercolonial Railroad, these difficulties will not exist ; therefore, your Committee urge upon the Government of the Dominion the necessity of co-operating with the Provincial Governments, through whose road the territory will pass, in the adoption of a well-considered and liberal policy, with regard to settlement. The Legislatures of Ontario, Quebec and New Brunswick, respectively, have passed homestead exemption laws. The former has also devoted large tracts of land for the behoof of actual settlers, in free grants of one hundred acres each, with permission to purchase an additional one hundred acres, at fifty cents an acre. Though these terms are not precisely similar to the homestead exemption and free grant system of the United States, they are presumed to be equally favorable. Your Committee doubt not that the terms will be altered or modified, should it be found in the interest of settlement to do so. The new policy, so far, appears to be liberal and progressive, and may be held as justifying a claim for an adjustment by persons in arrears to the Government on account of purchased lands in the comparatively recent settlements, but which lands, for various reasons, are of little real value.

"The mode in which the mineral lands in the Dominion are to be disposed of, and the obligations imposed by the Governments with regard to the manner of working these lands, will very seriously affect the number of mining immigrants, as well as the flow of capital necessary for the development of our mineral resources. The mode of disposing of such lands should be at once inviting and encouraging ; therefore your Committee desire to express the hope that the public policy in regard to them will be quite as liberal as that which appears to have succeeded in the United States. By the investment of capital in extracting the treasures of the mine, a consuming population necessarily follows, so that, besides giving value to that which has no value, while hidden in the earth, a home market is opened for the produce and manufactures of the country."

From the above it will be seen that the important matters of immigration and colonization are still attracting the attention of the Dominion Legislature, and that there is evidently felt to be need of modification and improvement in existing arrangements. This is well. We are persuaded that nothing is of more pressing importance just now than doing all we can to attract a hardy, industrious, thrifty population to our unoccupied lands, and for this purpose a most liberal policy ought to be adopted. Better far to err, if err we must, on the side of generosity than of parsimony.

We quite agree with the Committee that public effort to induce persons to immigrate should be put forth very judiciously. Perhaps little should be done besides giving publicity to facts relative to the country, leaving these to their natural influence. But most certainly information should be as widely diffused as possible. We are in favor of spreading information not only by suitable publications, but by the living voice, if a suitable person or persons can be found to undertake a tour of lectures in the old world. But it requires a rare combination of qualities to fit a man for this work. He must know the country, understand roughing it in the bush, have some enthusiasm in regard to Canada, and be a vivacious public speaker. Such a man might do immense service in promoting immigration and colonization.

But whatever is done in the way of advertising Canada, it is of prime importance that alluring inducements to settle be offered by the Government. Our Homestead and Free Land Grant Acts are hampered with too many restrictions. Apart from the expediency of a liberal policy in itself considered, we have powerful competition to contend with. Our American neighbors have shown themselves wise in their generation in the unincumbered freeness of their land system. They have peopled their new territories in a marvellously short space of time, and augmented commerce and revenue to a degree that has paid them well indeed for the bestowal of the land on settlers. Let us imitate their example, and if possible outdo them in generosity toward the emigrant. We shall find our account in it, without fail.

Agricultural Intelligence.

The Crops.

FAVORABLE reports of the condition and promise of the crops reach us from all sections of the country. The season, though it opened unusually early, has been kept back by cool, if not cold weather. This has, however, proved no detriment, and will eventually be advantageous to field crops and fruit. Latterly an abundance of rain, with moderately warm weather, has set everything growing most luxuriantly. Pastures and meadows especially are pushing vigorously forward, under the influence of the timely showers, and there is every probability of another abundant hay crop. As specimens of the reports contained in our local exchanges, we give the following. The Belleville *Intelligencer* says :

The warm sun and genial rains are bringing on vegetation with remarkable rapidity. Nearly all the spring grain has been got in under very favorable circumstances, and the fall wheat presents a much better appearance than it did a week or two ago. A farmer of great experience told us this morning he never knew a season which promised such a bountiful harvest, and unless something untoward occurs, the husbandman will be enabled to rejoice and give thanks for barns and granaries overflowing with plenty.

And from the fruit garden of our Province we have the following report in the *St. Catharines Daily Briton* :

We are happy to announce that all kinds of crops never presented a more promising appearance than they do at present, in this neighborhood. Fall and spring grains are growing luxuriantly under the influence of the very favorable weather we have enjoyed for several weeks past. There is also every appearance of an enormous fruit crop. Apple, pear, plum, and cherry trees, are just now bursting into bloom, and will certainly yield a golden harvest, if no late frosts or other unforeseen disasters occur. Contrary to expectation, it seems probable that some of the peach trees may likewise produce some fruit, as all the buds are not winter killed. Grapes, strawberries, and other small fruits, promise heavy returns. From all parts of the Province we are constantly receiving favorable reports of the grain crops ; and the same is true of the Western States.

Dominion Ploughing Match.

THE Dominion Ploughing Match took place at Brooklin on the 21st of May. There were seventy-two entries, and the number of spectators present was estimated at from 5,000 to 6,000 ; but the latter part of the day was wet and uncomfortable, which no doubt considerably diminished the attendance of visitors. The ploughing commenced about ten o'clock in the forenoon; the field selected for the trial belonged to Mr. John Camplin, and was situated about a mile and a half from Brooklin. It contained twenty-four acres, and about one-third of an acre was allotted to each competitor. The time allowed was 4 hours 8 minutes to first-class men, and 3 hours 10 minutes to other classes. The time seemed rather short, and some did not get through their task. There was some excellent work displayed by others besides the successful competitors. The land, however, was not in first-class condition, the soil being too tender. On the ground there was an ox team in harness, which attracted much attention; so much so, indeed, that the numbers gathering around caused the animals to be somewhat frightened.

Among the visitors present were both the members for South Ontario, T. N. Gibbs Esq., and Dr. McGill. The occasion of so large a concourse of people gave an excellent opportunity for the display of agricultural implements and other matters of interest to farmers. Reapers and mowers were exhibited by Messrs. Massey, of Newcastle, Hall of Oshawa, and Brown, of Whitby. The new style of Reaper, known as the Marsh Harvester, and recently described in the CANADA FARMER, was also shown by Messrs. Paxton, Tate and Co., of Port Perry. There were besides a number of smaller articles, such as cheese vats, horse rakes, Thomas' bee hives, &c.

The ploughs used were generally the iron plough, and proved themselves in good hands to be thoroughly efficient implements. The following was the award of prizes :

First-class Men—Simpson Rennie, Scarborough, 1st prize, $100—given by the Hon. the Speaker, and members of the House of Commons.

Adam Hood, Scarborough, 2nd prize, $50—given by the members of the Commons and Local Legislature for North and South Ontario.

William Hood, Markham, 3rd prize—A twenty-dollar plough, the gift of Messrs. Brown & Patterson, together with $20 added.

James Forest, West Whitby, 4th prize, $15.

Andrew Hood, Scarborough, 5th prize, $10.

Second-class Men—William Patton, Scarborough, 1st prize, a seed drill, valued at $80, the gift of Mr. Glen of Oshawa.

John Morgan, Markham, 2nd Prize, a pair of harrows, valued at $15, the gift of Messrs. Walters & Brady, Audley, together with $20 added by the Municipal Council of East and West Whitby.

John Burns, West Whitby, 3rd Prize, $25 worth of agricultural Implements, the gift of Messrs. Whiting & Cowan, Oshawa, being one of every article manufactured by that firm.

Andrew Davidson, Pickering, 4th prize, a spring bar saddle, valued at $12, the gift of Mr. John Dale, of Brooklin.

John Hickingbottam, Pickering, 5th prize, $8.

First-class Boys, 18 and under—John Gowie, Pickering, 1st prize, $20, the gift of the Hon. John Simpson.

William Leask, Foley, 2nd prize, a pair of harrows, valued at $16, the gift of Messrs. Hepburn & Roberts, Brooklin.

John Lamb, Reach, 3rd prize, $8.

Thomas C. Pilkey, Pickering, 4th prize, a first-prize horse rake, valued at $5, the gift of A. Ketchen, Brooklin.

R. G. Ratcliff, Columbus, 5th prize, $3.

Second-class Boys, 15 and under.—George Robb, Whitby, 1st prize, a bridle and martingale, valued at $6, the gift of Mr. William Thompson, of Whitby, to which was subsequently added (after the advertisement of the premiums had been printed) a sewing machine valued at $16, the gift of Mr. G. M. Green, of Uxbridge.

J. Cawie, Pickering, 2nd prize, $5, the gift of W. S. Billings, Esq., of Whitby.

Jasen Stone, Brock, 3rd prize, a bridle and martingale valued at $4, the gift of Mr. Maybee, Brooklin.

James Lynde, Whitby, 4th prize, a bridle and martingale valued at $3, the gift of Mr. Philip, Whitby.

From the above it will be seen that Scarborough and Markham carried off the highest and best of all the valuable prizes. All the ploughing was pronounced excellent, and the judges had no easy task in arriving at a decision. Their award, however, was generally acquiesced in as satisfactory.

The judges were Messrs. Walter Daizel, Vaughan ; James Weir, Scarborough ; John Lee, Whitby ; John Hepburn, East Whitby ; William Sinclair, Whitby ; and John Whiteridge, Bowmanville.

The officers of the Whitby and East Whitby Society had no small difficulties to encounter when they undertook the enterprise of the Dominion Ploughing Match, and awarding prizes amounting in the aggregate to some $500. They may well congratulate themselves upon the abundant success which has crowned their efforts, and the general expression of of satisfaction on every side called forth by their management.

Since the above report was put in type, we have received a communication on the subject from Mr. James King, who writes in high terms of the excellence of the work, the competence and fairness of the judges, and the general success of the match. He adds that Scarboro offers to subscribe the necessary funds for the next Dominion Ploughing Match, and thinks no Township better suited for the trial or able to acquit itself more honorably in the competition. It is also proposed, he says, to institute "a Dominion Ploughing Society, with officers and directors in different counties."

Wool Exposition.

WE have received the following circular in reference to a proposed Exhibition of Wool and Woollen fabrics, to be held in Chicago in the month of August next. The matter will doubtless be of interest to our wool-growers and manufacturers, though we do not understand that the competition is open to Canadians.

At a meeting of the Woollen Manufacturers' Association of the Northwest, held at Chicago, Feb. 15, 1868, it was decided to hold an Exposition of Wools and Woollen Goods at Chicago, on Tuesday, Wednesday and Thursday, Aug. 4, 5, and 6, 1868. It is the design of the Exposition to make such an exhibition of all the classes of wools produced in the West, and of all the manufactured products of these wools, as shall fitly show the present magnitude of the wool and woollen interests of the West, and shall best advance their future prosperity, and by bringing together representatives of the wool-growers and wool-workers to enable them to harmonize conflicting views and to agree on such course as shall best advance the interest of both parties. It will also prove of great advantage to parties exhibiting, in affording opportunities for effecting sales.

There is every indication of a very large and fine exhibition of wool products. Manufacturers have also been requested to exhibit specimens of the wools of their several localities as prepared for market, and also when scoured. But for the main display of wools we must look to the wool growers. The Exposition Committee, in accordance with a resolution adopted by the Association, extend a cordial invitation to the wool-growers of the United States, especially of the Northwest, to exhibit specimens of all classes of wools. Where it is practicable, it is requested that entire fleeces be sent, but where this is impracticable, samples will be gladly received.

Every facility will be granted exhibitors of wools to enable them to display their goods to the best advantage. It is requested that the delegates appointed by the Northwestern Wool Growers' Association, to attend the Exposition, and delegates from or officers of the National and State Wool Growers' Associations, will assist in the selection of a Committee to properly classify and arrange the wools exhibited.

An effort will be made to have goods intended for exhibition shipped over the various railroads free of charge. If addressed to the Secretary of the Association, Jesse McAllister, 2, 4 and 6, Rush Street, Chicago, they will be taken to the place of exhibition and properly placed by the Committee, free of charge.

The diploma of the Association will be awarded to the exhibitors of the best and largest displays of each of the following classes of wool : Broadcloth, delaine and combing ; of the best collection of samples of each of these classes ; of the three unwashed fleeces (in each class) best "put up" for market ; of the three best "put up" washed fleeces (of each class) ; of ram's fleece (in each class) of greatest market value ; of ewes' fleece (in each class) of greatest market value ; and of any other exhibition of peculiar merit.

The breeders of the various breeds of sheep are requested to exhibit engravings or photographs of their stock.

Parties desiring to exhibit wool are requested to send statements of the number and kind of fleeces or samples they propose exhibiting, to G. E. Morrow, Office of *The Western Rural*, Chicago, Ill., to whom all correspondence concerning the wool department of the Exposition may be addressed.

Sheep and Shearing Exhibition.

THE principal feature in the celebration of the Queen's Birthday, at Hamilton, on the 25th ult., was the Sheep and Shearing Exhibition, conducted by the City and County Agricultural Society. This, the fourth occasion of the kind, has been a splendid success, drawing competitors from neighbouring counties, to a considerable distance. The following is the Prize List :

CLASS I.—14 ENTRIES.

Best Leicester Ram, aged, Wm. Douglas, Onondaga township, county of Brant.
2nd do., N. & B. Barker, Paris.
3rd do., Wm. Cleland, Glanford.
Best yearling do. do., Wm. Douglas, Onondaga.
2nd do. do., Peter Grant, Barton.
3rd do. do., Wm. Cleland, Glanford.

The show of Leicester rams was particularly creditable to Mr. Douglas, who was the ewe breeder of Messrs. Barker's ram that took the second prize ; also of Mr. Cleland's, that took the third prize, as well as of his own, that took the first prize.

CLASS II.—7 ENTRIES.

Best Cotswold Ram, aged, F. W. Stone, Guelph.
2nd do., Joshua Freeman, Wellington Square.
3rd do., J. L. Harming, Flanders West.
Best yearling Cotswold ram, F. W. Stone, Guelph.
2nd do., Thomas Blanchard, Nelson.

CLASS III.—10 ENTRIES.

Best Lincoln Ram, J. T. Nottle, Binbrook.
2nd do. do. do.
3rd do. do. do.
Best yearling Lincoln ram, John Walker, East Flamboro.
2nd do. Peter Grant, Barton.
3rd do. J. T. Nottle, Binbrook.

CLASS IV.—5 ENTRIES.

Best Southdown ram, John Renton, Glanford.
2nd do. James Smith, Ancaster.
Best yearling Southdown ram, F. W. Stone, Guelph.
2nd do. Robert Shaw, Glanford.

CLASS V.—5 ENTRIES.

Best Merino ram, W. Howing, East Flamboro.
2nd do. A. Binkley, Glanford.
3rd do. Thos. Shaw, Glanford.

CLASS VI.—11 ENTRIES.

Open to all other classes—sweepstakes.

Best ram, any age or breed, F. W. Stone, Guelph.
2nd best do. do., J. T. Nottle, Binbrook.
3rd do. do., Joshua Freeman, Wellington Square.
4th do. do., Wm. Douglas, Onondaga.

CLASS VII.

Best fleece, according to value, Peter Grant, Barton.
2nd do. do., J. T. Nottle, Binbrook.
3rd do. do., Wm. Douglas, Onondaga.
4th do. do. John Walker, East Flamboro.

Sheep and fleece unwashed, and shown on the ground.

SHEEP-SHEARING.

Best shearer on sheep of any age, John Gill, of Exeter village, county of Huron.

AGED SHEEP.

1st, W. Hawkins, township of Metcalfe.
2nd, John Wass, Paris village.
3rd, Nicholas C. Ford, Glanford.
4th, — Scott, Binbrook.

YEARLING SHEEP.

1st, Joseph Alton, of Nelson township.
2nd, James Ford, Glanford.
3rd, Edward Lavis, Hamilton.
4th, Wm. Milne.

Officers of Agricultural Societies.

SOUTH RIDING OF BRUCE.—President, Richard Rivers, Brant; 1st Vice-President, Nathan Lines, Brant; 2nd Vice-President, Alexander Gibson, Culross; Secretary, William Fraser, Walkerton. Directors :—Thomas Inglis, Carrick; P. M. Shannon, Carrick; W. Clark, Greenock; P. B. Brown, Culross; P. Reid, Kinloss; W. Withers, Kincardine; J. D. Parsills, Carrick; Treasurer, James Waterson, Walkerton.

☞ During the month of April nearly 5,000 cattle were exported from Canada to Buffalo, the duties on them footing up $19,000.

MAINE AGRICULTURAL STATE FAIR.—The Trustees of the Me. State Agr. Society have decided to hold the State Fair in Portland, beginning on Tuesday, Sept. 29, and to continue four days. The Cumberland Co. Agr. Society and the Portland Horticultural Society will unite, and thus combined the Fair must be magnificent.

SHORT-HORN BULL "PRINCE OF SOLWAY."—We learn that this promising Durham bull has been sold by Mr. John Snell to Mr. Lawrence Naismith, of Ramsay. It is confidently expected that he will prove a valuable addition to our Canadian Short-Horns. He is seven months old, and was sired by imported "Baron Solway," (45) dam "Blanche," by imported "Prince of the West," (588).

EXCHANGE OF SEEDS WITH RUSSIA.—The Scientific Committee of the Ministry of Domain, at St. Petersburg, have requested Mr. A. Kirkwood, of the Crown Lands Department, to send them a few pounds of the seed of the Canadian water-rice, for the purpose of making the experiment of growing it in the north of Russia. An exchange of seeds between Canada and Russia, such as Mr. Kirkwood has been endeavouring to effect, would produce important results in the agriculture of both countries, as their climatic range is very large, and somewhat similar.

AGRICULTURAL OPERATIONS.—The Montreal *Telegraph* says a friend, who has been travelling through part of the State of New York, says that field operations are considerably behind those in the neighbourhood of Montreal. A great demand, however, exists for milch cows, American buyers being anxious to purchase in Canada to supply the demand in New York State. A few days ago seventy head of prime milkers from the Upper Ottawa were taken over, and two car loads were sent from Smith's Falls. The prices obtained were above the average of late rates by from thirty to forty per cent.

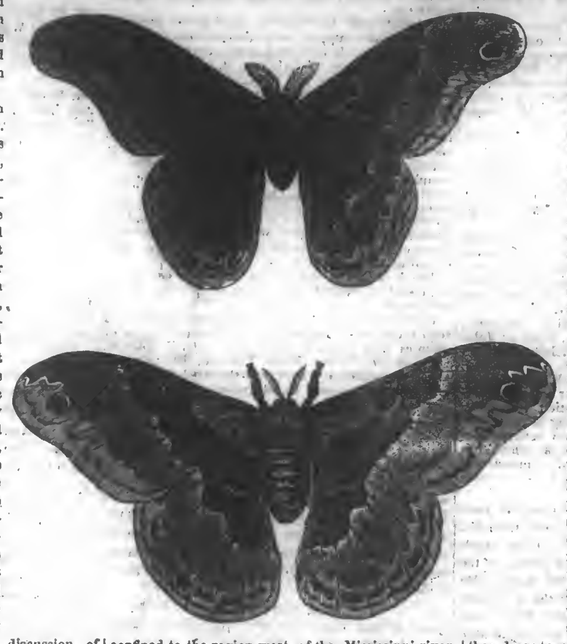
Entomology.

Entomological Report.

FIRST ANNUAL REPORT ON THE NOXIOUS INSECTS OF THE STATE OF ILLINOIS, by Benj. D. Walsh, M. A., Acting State Entomologist. Chicago: 1868.

We were quite agreeably surprised at the receipt of the above Report, as we understood that the appointment of a State Entomologist in Illinois had fallen to the ground through some strange blundering and misunderstanding. Such, indeed, was the case; but through the kindly intervention of the State Horticultural Society, Mr. Walsh was induced to go on with his valuable labors, as if the appointment had actually taken place, trusting that, when the Legislature next meets, they will approve of the course he has taken, and vote him the proposed salary. From all that we can learn we have little doubt that Mr. Walsh's expectations will be verified, and that he will receive a certain though tardy recompense for his labors.

The Report before us opens with an introductory chapter, in which Mr. Walsh relates all the circumstances connected with his quasi-appointment, and the manner in which he was induced to go on with his work, defending himself from any possible charge of taking too much upon himself, and discharging duties that he had no right to undertake. He closes the chapter with an account of the mode in which he intends to pursue his Reports, viz., "in such language as will be intelligible to any one who has had a good common school education," except that, after giving the English names of insects, he will add the scientific names in a parenthesis. Thus they will be adapted to the farmers and gardeners for whom they are intended, and not be suited only to scientific men or those of more than average acquirements, as is too often the case in works on Natural History and kindred subjects. Owing to the peculiar circumstances under which this first report was drawn up, no account is given of insects injurious to field crops, reference being only made to such as particularly come in the way of gardeners and fruit-growers; a discussion of these, however, is generally useful, for farmers, if they are not, ought certainly to be fruit-growers and gardeners also. The first insect taken up is the Grape Curculio, a small snout-beetle that has proved eminently destructive in Kentucky, Ohio, and Illinois. Though long known in its perfect state, Mr. Walsh gives here the first account of its earlier existence and full natural history; it has never, so far as we are aware, been taken in Canada. Another vine-insect is next discussed, the grape-leaf Gall-louse; this insect particularly affects the Clinton, Delaware, and a few allied varieties of grapes, causing much injury to the leaves by producing on their under side "immense numbers of green fleshy excrescences about the size of a small pea." A remedy for the "Rose-bug" (which we mentioned last year as being very troublesome near Oakville, Ont.) is the subject of Chapter III: the remedy is to grow a Clinton vine in the neighborhood of choice varieties of grape, as the insect has the bad taste to prefer the Clinton, and will desert all others for it; then, when collected thus on one vine, jar them off and kill them in any convenient way, with hot water, for instance. The next chapter gives an account of a Borer, similar to the peach-tree borer, that attacks the roots of the vine, and is the produce of a small clear-winged moth (*Ægeria*). The six following chapters are taken up with various insects that prey upon the fruit, leaves, and bark of apple-trees; among these we may particularly draw attention to the valuable account of the only too familiar "Oyster-shell Bark-louse." Three more chapters are occupied with as many destroyers of plums, viz., the terrible Curculio, the Plum-gouger—a somewhat similar insect to the foregoing, that makes round holes in the fruit, instead of crescents, and which was discovered by Mr. Walsh last year,—and the Plum-moth, another discovery of our author's, whose habits in the larval state are apparently similar to the others referred to. The Report closes with a long account of the ravages in various quarters of what is justly named "The Hateful Grasshopper," (or rather, we should say, Locust). This insect is confined to the region west of the Mississippi river, where it fulfils all the accounts given us of its cousins in eastern lands; it chiefly differs from our common grasshopper in its superior length of wing, and consequent powers of flight. The Report is illustrated, we should mention, by a plate containing figures of the more newly discovered insects.



In concluding this rather lengthened notice, we would express the hope that this is but the first of a long series of useful Reports by Mr. Walsh, who is so well qualified to produce them, and that his State Legislature will ere long recognize that in his case decidedly "the laborer is worthy of his hire."

Caterpillars on the White Cedar.

HEDGES of White Cedar form a charming feature in many gardens in and about Toronto, and notably in the grounds of Mr. Leslie's Nursery establishment on the Kingston Road; but mere beauty, alas! affords no protection against the spoiler, and even here we find growth and verdure marred by the unsparing insect. Some twigs from Mr. Leslie's hedges have recently been sent us, which sadly exhibit the destructiveness of these tiny ravagers. A minute dirty green caterpillar, with a black head and sixteen legs, has been busily at work mining into the leaves, and eating away all the green pulpy matter. A countless number of these insects soon give a blighted appearance to a once lovely hedge, and make it look as if a fire had passed through it. The mining habit of these caterpillars renders ineffectual any outward application of soap suds, lime, or other ordinary remedy; there only remains then the cutting off and burning of all infected parts. The caterpillar will turn by and by into a tiny moth of the family *Tineidæ*, of what exact species we are not yet aware.

Singular Cocoons.

A LADY sends us from Mimico two cocoons attached to a twig of lilac, accompanied by the following explanatory note:

"Enclosed you will find two specimens of Cocoons, yearly found at the bottom of a lawn, and always fastened on a white lilac bush, dangling in every storm and breeze during the whole winter. Please tell us all about them." The singular cocoons sent us by our fair correspondent, and which we were glad to receive, are specimens of the produce of one of our native silk-producing moths—the "Promethea Emperor Moth" (*Callosamia promethea*, Drury). From the eggs of this insect are hatched out in early summer a brood of bluish-green caterpillars, which come to their full size of about three inches in length, and half an inch in diameter, during the month of September. They are then very handsome, the body being adorned with a number of rows of small warts, some of which are of a bright coral-red colour, others deep blue, while one long wart is bright yellow. They feed upon the leaves of cherry, ash, sassafras, and probably some other trees. When they have attained to maturity as caterpillars, they wander off to find a suitable tree on which to form their cocoons, and pass the winter. Their mode of doing this is very curious; they select a leaf of suitable size, and fasten it securely to the twig from which it is growing by twisting silken threads around the stem and twig; then they draw together the opposite edges of the leaf, and in the hollow space thus formed construct their tough silken cocoons. This leaf, of course, withers in due time, but is prevented from falling, like the rest by its silken fastenings, and remains all through the winter dangling in mid-air as described by our correspondent. Its resemblance to an old dry leaf is no doubt a great source of protection to the snugly-enclosed chrysalis within, and accounts for the strange mode of construction. In the following June the moth comes out, and is a large and handsome object. The illustrations annexed (taken from Harris) afford an excellent representation of the size and appearance of the insect; the two sexes differ so much from each other that they might easily be mistaken for different species; the male is the smaller specimen, with deep black wings, while the female is larger, and of a reddish brown colour.

PRIVET MOTH.—We have received from Alva Rose, of Matilda, a fine specimen of the chrysalis of the Privet or Lilac Sphinx, (*sphinx cinerea*). It is one of our largest insects, feeding on the privet, lilac, or ash. Our readers will find a brief notice of the moth in the CANADA FARMER for Oct. 15th, 1866, Vol. 3, page 309.

Fruit Growers' Association.

PURSUANT to notice and in accordance with the provisions of the new Agricultural Bill, a meeting was held in Hamilton on the 15th of May to re-organize the Fruit Growers' Association. There was a large attendance of gentlemen from various parts of the Province. The chair was occupied by W. H. Mills, Esq., and in the unavoidable absence of Mr. Beadle, Mr. W. Craigie was appointed Secretary for the occasion.

The President explained the object for which the meeting was called, viz:—to consider and adopt a constitution and by-laws for the government of the society. The President then read a draft of constitution, clause by clause, which was adopted, as follows:—

CONSTITUTION.

Art. 1st. This Association shall be called the "Fruit Growers' Association of Ontario."

Art. 2nd. Its objects shall be the advancement of the science and art of fruit culture, by holding meetings for the exhibition of fruits, and for the discussion of all questions relative to fruit culture, by collecting, arranging and disseminating useful information, and by such other means as may from time to time seem advisable.

Art. 3rd. The annual general meeting of the Association shall be held at the place, and during the same time, as the exhibition of the Agricultural and Arts Association is being held, in each and every year. Two other general meetings shall be held in each year, at such time and place as shall be designated by the Association.

Art. 4th. The officers of the Association shall be composed of a President, Vice-president, a Secretary, Treasurer, and nine Directors.

Art. 5th. Any person may become a member by an annual payment of one dollar, and a payment of ten dollars shall constitute a member for life.

Art. 6th. The constitution may be amended by a vote of a majority of the members present at any regular meeting, notice of the proposed amendments having been given at the previous meeting.

Art. 7th. The said officers and directors shall prepare and present to the annual meeting of the association a report of their proceedings during the year, in which shall be stated the names of all the members of the Association, the places of meeting during the year, and such information as the Association shall have been able to obtain on the subject of fruit culture in the Province, during the year. There shall also be presented at the said annual meeting a detailed statement of the receipts and disbursements of the Association during the year, which report and statement shall be entered in the journal, and signed by the President as being a correct copy, and a true copy thereof, certified by the secretary for the time being, shall be sent to the Commissioner of Agriculture, within fourteen days after the holding of such annual meeting.

Art. 8th. The Association shall have power to make, alter, or amend by-laws for prescribing the mode of admission of new members, the election of officers, and otherwise regulating the administration of its affairs and property.

BY-LAWS.

1st. The President, Vice-President, and Secretary-Treasurer shall be ex-officio members of all committees.

2nd. The Directors may offer Premiums to any person originating or introducing any new fruit adapted to the climate of the Province, which shall possess such distinctive excellence as shall in their opinion render the same of special value; also, for essays upon such subjects connected with fruit growing as they may designate under such rules and regulations as they may prescribe.

3rd. The Secretary shall prepare an annual report, containing the minutes of the proceedings of meetings during the year, a detailed statement of receipts and expenditures, the reports upon fruits received from different localities, and all essays to which prizes have been awarded, and such other information in regard to fruit culture as may have been received during the year, and submit the same to the directors or any committee of directors appointed for this purpose, and with their sanction, after presenting the same at the annual meeting, cause the same to be printed by and through the Publication Committee, and send a copy thereof to each member of the Association, and to the Commissioner of Agriculture.

4th. Five Directors shall constitute a quorum: and if at any meeting of Directors there shall not be a quorum, the members present may adjourn the meeting from time to time, until a quorum shall be obtained.

5th. The annual subscription shall be due in advance at the annual general meeting.

6th. The President (in or case of his disability the Vice-President) may convene special meetings at such times and places as he may deem advisable, and he shall convene such special meetings as shall be requested in writing by five members.

7th. The President may deliver an address on some subject relating to the objects of the Association.

8th. The Treasurer shall receive all moneys belonging to the Association, keep a correct account thereof, and submit the same to the Directors at any legal meeting of such Directors, five days' notice having been previously given for that purpose.

9th. The Directors shall audit and report all accounts, which, when approved of by the President's signature, shall be submitted to and paid by the Treasurer.

10th. It shall be the duty of the Secretary to keep a correct record of the proceedings of the Association, conduct the correspondence, give not less than ten days' notice of all meetings to the members, and specify the business of special meetings.

11th. The Directors, touching the conduct of the Association, shall at all times have absolute power and control of the funds and property of the Association, subject, however, to the meaning and construction of the constitution.

12th. At special meetings no business shall be transacted except that stated in the Secretary's circular.

13th. The order of the business shall be—1st, Reading of Minutes; 2nd, do Directors' Reports; 3rd, do Treasurer's do; 4th, do Prize Essays; 5th, President's Address; 6th, Election of Officers; 7th, Miscellaneous Business.

14th. These by-laws may be amended at any general meeting by a vote of two-thirds of the members present.

15th. Each member of the Fruit Committee shall be charged with the duty of accumulating information touching the state of the fruit crop, the introduction of new varieties, the market value of fruits in his particular section of country, together with such other general and useful information touching fruit interests as may seem desirable, and report in writing to the Secretary of the Association, on or before the fifteenth day of September in each year.

16th. Whereas the President, or Vice-President, and Secretary, as ex-officio members of the Board of Directors, and of all Committees, should be present at all meetings, wherever they may be holden, their reasonable travelling expenses shall be provided from the funds of the Association.

17th. The annual meeting of the Association shall be held on some evening during the exhibition week, to be fixed by the Directors after consultation with the Board of Agriculture and Arts, at which meeting the President may deliver his annual address, and essays on fruit culture be read.

OFFICERS OF THE ASSOCIATION.

The following gentlemen were appointed office-bearers:—President, William H. Mills, Hamilton; Vice do J. C. Rykert, St. Catharines; Secretary-Treasurer, D. W. Beadle, St. Catharines.

DIRECTORS.—Judge Logie, Hamilton; George Leslie, Toronto; John R. Martin, Cayuga; Lewis Springer, Barton; Charles Arnold, Paris; William Saunders, London; Rev. R. Burnet, Hamilton; Levi Lewis, Ontario; A. M. Smith, Grimsby.

FRUIT COMMITTEE.—John A. Bruce, Hamilton; Chas. Arnold, Paris; A. M. Smith, Grimsby; George Leslie, Toronto; A. Leslie, London; David Coldwell, Galt; William Sanderson, Brantford; John Freed, Hamilton; W. Eccles, St. Catharines.

PUBLICATION COMMITTEE.—Judge Logie, Hamilton; Oliver T. Springer, Wellington Square; A. Macallum, M. A., Hamilton; William Craigie, M. A., Hamilton.

Before adjourning, it was resolved, on motion of Mr. Smith, seconded by Mr. Eccles, that the thanks of the Association be given to J. C. Rykert, Esq., M. P. P., for his zealous exertions in promoting the passing of the Agricultural Bill.

Hamilton Hortioultural Society.

WE have received a pamphlet containing the Constitution, By-Laws, and Eighteenth Annual Report of this efficient and flourishing Society, also the prize list for 1868. The condition of its affairs will be best exhibited by the Annual Report, which is a model of brevity, and the Treasurer's account, both of which we subjoin. This Society holds three exhibitions in the year: the first, May 25th, the second, July 1st, and the third on the Tuesday prior to the Provincial Exhibition.

EIGHTEENTH ANNUAL REPORT.

The Board of Directors, on retiring from office, would congratulate the members on the continued prosperity of the Society.

During the past most unfavorable season the three exhibitions were, on the whole, very successful, and the attendance on the part of the public was unprecedentedly large.

A reference to the Treasurer's report, which is herewith submitted, will show that a respectable balance of cash remains on hand after paying all the expenses of the year.

The Society's diploma to the professional gardener and to the amateur who should gain the greatest number of prizes during the season, in their respective classes, were awarded to Mr. William Hill and Mr. James Webster; the latter is also entitled to hold the Craigie Medal for the ensuing year.

The Office-Bearers and Directors will be glad to furnish any information asked for, by members, concerning the affairs of the Society.

Hamilton, 1st Feb., 1868.

J. A. BRUCE, *President.* JAMES ROBB, *Secretary.*

The Treasurer in Account with the Hamilton Horticultural Society. Dr.

RECEIPTS.	$ cts.
To Receipts at door, May Exhibition	314 50
" " " July "	119 50
" " " Sept. "	175 50
" 310 Members' subscriptions	620 00
" Amount received on Special Prizes	81 00
" Balance from last year	16 76
" Amount Prizes awarded G. H. Mills	1 75
	$1329 11

DISBURSEMENTS.	$ cts.
By Amount paid in Prizes	644 50
" Paid for labor and decorating	60 00
" " Judges' expenses	93 30
" " Carpenter's account	66 72
" " Music, 3 shows	120 00
" " for use of Drill Shed	75 00
" " Collector	21 98
" " T. & R. White's account	55 73
" " C. E. Stewart & Co's account	69 12
" " W. Farmer's account	12 00
" " J. Eastwood's "	5 87
" " Sundries	56 67
	$1260 89
" Balance	68 22
	$1329 11

Hamilton, 1st Feb. 1868.

W. A. GEDDES, J. W. SINCLAIR, } *Auditors.* CHAS. MESTON, *Treasurer.*

Save Your Plums.

To the Editor of THE CANADA FARMER:

SIR,—To those of your readers who are anxious to secure a good crop of plums against that incorrigible pest, the Curculio, permit me to state a successful method I have pursued for the last five years, although by no means new as a remedy. It is well known by some and pursued by others, yet there is not that strict attention paid by the majority of people who own a plum tree to secure success. I have observed some of my neighbours take the precautionary measure of jarring their trees, yet still allow the fallen plums to remain upon the ground. Now, this is a fatal mistake. Nearly all of these plums contain worms, which, during the season, are changed to Curculio, remain dormant till the following season, then make their appearance in great numbers, to the amazement and disgust of the person who fancied he had done them "brown" the year before. The way I pro-

ceed is this: I saw off a nearly horizontal limb, if such can be found, leaving a stump of three or four inches upon which to operate; then secure a pretty heavy wooden mallet, having its head covered with an elastic cushion, then two cotton sheets of six by twelve feet each, to two sides of which I tack strips of lath so that it enables me to lay them under each tree at full length adjoining each other, thus covering a space of twelve square feet, the whole being easily gathered up and removed to any tree. So armed, I may be seen during the growing season, from the time the young fruit attains the size of a small pea, "just at peep o' day," spreading these sheets beneath my plum trees, and then with a quick sharp strike against the stump of the sawed limb, with the aforesaid battering ram, I bring the enemy to bay. No quarter is ever asked or given. Under the power of such a storm, after the first few mornings the enemies' numbers grow small and by degrees beautifully less, until at length the war cry of the last "Mohegan" sounds a solemn dirge in the dewy morn. The secret is, by surprising the enemy so early in the morning, you have him at a disadvantage; for then his wings and joints are stiff, his powder damp, he falls easily into your bags; when there he looks (do not mistake him) like a dead plum bud. Now, good reader, if a little lassitude prevents your getting up with the lark, you will never secure a glorious sight of purple and golden plums after the above fashion, unless, indeed, you are fond of hogs, for they, if allowed to roam among your trees, will eat the wormy fallen fruit as soon as dropped, and thus the year following there will not be quite so many Curculio, and perchance, from paucity of their numbers, not quite able to puncture all your plums, you may have the felicity of pointing to a few stray fruits; you will at the same time have the gratification of seeing your soil cultivated without a ploughshare. This, to a man of taste, would scarcely be considered scientific. A few words more; the wind blows your plum trees at times severely, without dislodging the little "Turk;" so that no mere shaking with the hands will accomplish the object sought; it must be a quick, decisive jar. Destroy all plums as soon as fallen, and enjoy the fruits of your labour as I have done. Try it; you will come to learn that it is not half the labour your fancy painted it.

FRUIT GROWER.

Hamilton, 9th May, 1868.

Questions on Pear Culture.

To the Editor of THE CANADA FARMER:

SIR,—Will you be kind enough to answer the following questions on pear culture:

1. What kind of soil, cultivation and manure, are best adapted for the pear?
2. Which varieties are least liable to disease?
3. Which variety of the quince is best adapted for dwarfing the pear?
4. Which would you recommend as the best six kinds of standard pears; two summer, two fall, and two winter varieties?
5. Are there any varieties of the pear adapted for cultivation on the thorn stock?

W. HAWTHORN.

St. Marys.

ANS. 1.—A deep rich loam, or clay and loam, is the best soil for the pear. Mellow cultivation and well-rotted barnyard manure are the best appliances for it.

2. This question is difficult to answer. All varieties are more or less liable to the blight, a mysterious affection for which, so far as we know, there is no remedy. Blight and winter-kill are the two banes of pear culture in this country.

3. The Angers quince.

4. Tastes differ, and there is no infallible standard of excellence; the following, however, would make a good collection: Dearborn's Seedling, Bartlett, Flemish Beauty, Beurre d'Anjou, Beurre Diel, and Vicar of Winkfield.

5. Almost any variety of pear will unite with the thorn stock, but we do not know of any special advantage there is in using it in preference to the natural root. It will not dwarf the pear; the quince is the only stock used for this purpose.

Poetry.

The Waning Moon.

BY WILLIAM CULLEN BRYANT.

See where, upon the horizon's brim,
Lies the still cloud in gloomy bars,
The waning moon, all pale and dim,
Goes up amid the eternal stars.

Late, in a flood of tender light,
She floated through the ethereal blue,
A softer sun, that shone all night
Upon the glittering beads of dew.

And still thou wanest, pallid moon!
The encroaching shadow grows apace;
Heaven's everlasting watchers soon
Shall see thee blotted from thy place.

Oh, night's destroyed and crownless Queen,
Well may thy sad expiring ray
Be shed on those whose eyes have seen
Hope's glorious visions fade away.

In thy decaying beam there lies....
Full many a grave on hill and plain,
Of those who closed their dying eyes
In grief that they had lived in vain.

Another night, and thou among
The spheres of heaven shall cease to shine,
All rayless in the glittering throng,
Whose lustre late was quenched in thine.

Yet soon a new and tender light
From out thy darkened orb shall beam,
And broaden till it shines all night
On glistening dew and glimmering stream.

The Household.

Home Influence of Country Life.

AMONG the chief peculiarities belonging to a country life may be placed that home feeling which has the power, through the whole course of after years, to bring back the wandering affections, and centre them in one point of space—one point of importance to a very limited portion of the community indeed, but a portion consisting of our nearest and dearest connections. In towns there can be comparatively little of this feeling. A man steps out of his door immediately upon common ground. The house he lives in is precisely like his neighbor's, one of a number, which he returns to without attachment, and leaves without regret. But in the country, not only the grass we tread on, the fruit on the trees, the birds that sing above our heads, and the flowers that bloom beneath our feet, but the very atmosphere around us seems to be our own. There is a feeling of possession in our fields, our gardens, and our home, which nothing but a cruel separation can destroy; and when absent far away in foreign lands, and exiled from that home perhaps forever, we pine to trace again the familiar walks, and wonder whether the woods and the green lawns are looking the same as when they received our last farewell. In the haunts of busy life the music of our native stream comes murmuring again upon our ear; we pause beneath the cage of the prisoned bird, because its voice is the same as that which delighted us in childhood; and we love the flowers of a distant country when they resemble those which bloomed in our own.

And all this has a higher moral significance and influence which have often restrained the tempted, or restored the lost to virtue and peace. There are other wanderers besides those who stray through foreign realms—wanderers from the ways of God. Perhaps such may have spurned the restrictions of parental authority, and cast away the early visitations of a holier love; but the home feeling, which neither change of place nor of character can banish from the heart, renews the memory of social ties, and draws back the exiled soul to the deserted hearth. Along with that memory, associated with the soothing affection which the self-banished has lived to want, and the wisdom of sage counsel which experience has proved true, the tide of conviction rushes in upon the burdened heart, and the prodigal, rousing himself from the stupor of despair, exclaims, "I will arise and go to my father!" Parents, we counsel you to make the most of this influence; believe that it is more important to make your children's home lovely and pleasant than to render your farms ever so productive; and young people, who have the privilege of such a haven of affection and security, cherish the love of home as your most precious talisman and treasure.

☞ Those who boast of plain speaking generally like it only in themselves.

☞ A desire to say things which no one ever said makes some people say things which nobody ought to say.

THE OPEN FIRE.—"I am a firm believer," says Dr. Cuyler "in the moral and spiritual influence of an *open fire*. To make home attractive, there must be somewhere in the house a common family rendezvous; and that ought to present a more radiant attraction than a black hole in the floor, through which hot air pours forth from a subterranean furnace. Men will fight for their altars and their firesides; but what orator ever invoked a burst of patriotism in behalf of stove-pipes and registers? I never cease to be thankful that I was brought up beside the hickory fire of a rural farm house."

KEEPING FURS.—The ladies are often anxious about keeping furs free from moths during the summer months. Some one advertises to send the requisite information for $1. Darkness is all that is necessary. The "Miller" that deposits the eggs from which moths are hatched, only moves in light; the moths themselves work in darkness. Hang the furs in a very dark closet, and keep the door shut; keep it always dark, and you can have no trouble. But, as closet doors are sometimes left open, the better way is to enclose the articles loosely in a paper box, put this in a pillow-case, or wrap around with cloth, and hang up in dark closet. Camphor, spices or perfumes, are of no use. Continual darkness is sufficient. And do not take out the furs in June and July to give them an "airing," for even then cometh the enemy, and it may be that in fifteen minutes after exposure, has deposited an hundred eggs. If you consider an airing indispensable, give the furs a good switching and put them quickly back.—*Country Gentleman.*

RICH WITHOUT MONEY.—Many a man is rich without money. Thousands of men with nothing in their pockets, and thousands without even a pocket, are rich. A man born with a good, sound constitution, a good stomach, a good heart and good limbs, and a pretty good head-piece, is rich. Good bones are better than gold, tough muscles than silver, and nerves that flash fire and carry energy to every function, are better than houses and lands. It is better than a landed estate to have had the right kind of father and mother. Good breeds and bad breeds exist among men as really as among herds and horses. Education may do much good to check evil tendencies or to develop good ones, but it is a great thing to inherit the right proportion of faculties to begin with. That man is rich who has a good disposition—who is naturally kind, patient, cheerful, hopeful, and who has a flavour of wit and fun in his composition. The hardest thing to get along with in this life is a man's own self. A cross, selfish fellow, a despondning and complaining fellow, a timid, care-burdened man—these are all born deformed on the inside. Their feet may not limp, but their thoughts do. A man of fortune, on the brink of the grave, would gladly part with every dollar to obtain a longer lease of life.

PREPARATION OF WHITEWASH.—Whitewash is one of the most valuable articles in the world when properly applied. It prevents not only the decay of wood, but conduces greatly to the healthiness of all buildings, whether of wood or stone. Out-buildings and fences, when not painted, should be supplied once or twice every year with a good coat of whitewash, which should be prepared in the following way: Take a clean, water tight barrel, or other suitable cask, and put into it half a bushel of lime. Slake it by pouring water over it, boiling hot, and in sufficient quantity to cover it five inches deep, and stir it briskly till thoroughly slaked. When the slaking has been effected, dissolve it in water, and add two pounds of sulphate of zinc, and one of common salt. These will cause the wash to harden, and prevent its cracking, which gives an unseemly appearance to the work. If desirable, a beautiful cream colour may be communicated to the above wash, by adding three pounds of yellow ochre; or a good pearl or lead colour, by the addition of lamp, vine or ivory black. For fawn colour, add four pounds umber—Turkish or American, the latter is the cheapest—one pound Indian red, and one pound common lampblack. For common stone color, add four pounds raw umber and two pounds lampblack. This wash may be applied with a common whitewash brush, and will be found much superior, both for appearance and durability, to common whitewash.—*Country Gentleman.*

The Apiary.

Surplus Honey.

As most bee-keepers keep bees for the sake of the honey they gather, it is well to understand how to obtain all the honey a stock will gather, more than is required for its own use, and to do so with the least annoyance to the bees. Various methods have been practised; but the most successful, up to the present time, has been by the use of surplus boxes. Time was, when the bees were destroyed to obtain their honey; but now, such instances are rare—that method being practised by those only who are ignorant of the science of bee-culture. Surplus boxes are as various in their construction as are the hives to which they are applied. Many are almost or quite worthless, the bees seldom depositing honey in them, on account of their construction or mode of application to the hive. If we consider for a moment the nature and habits of the bee, the proper method of securing a large amount of honey, and in the most convenient manner, will readily suggest itself to our minds. It should be remembered that it is the nature of bees to work in a mass, or closely connected together. It is also their nature to store the honey as near the brood as possible, and to make use of all empty combs available, in the height of the honey season. It will then be readily seen that honey boxes should be so constructed, and applied to the hive, as to allow bees an easy access, and so that the bees when in the box are still connected with the bees in the hive; and as they are always in the habit of storing the honey close to the brood, a deep or tall honey-box is objectionable. Many will have observed that when they removed a deep honey-box, and placed upon the hive shallow ones, the bees have readily gone to work. Suppose we were to place a surplus box, three feet deep, on a hive, would the bees be likely to commence work therein? Not at all; for it is their nature to commence at the top of the box, which would separate them in such a box some three feet from the main body of the bees.

It will be found, then, that the more shallow the boxes for surplus honey, the more likely the bees are to work in them. Surplus boxes should be made of thin stuff, especially the bottom board, and a free and easy entrance given. With frame hives, boxes are sometimes used without any bottoms, and placed upon the frames. Though the bees will readily enter such boxes, if shallow, still they are not tidy, nor convenient for marketing. Boxes should therefore be made of thin stuff, and the board on top of the hive, on which the boxes are placed, should be thin also, and a free entrance should be provided. The bees will then enter readily to deposit honey, and when the boxes are removed, the honey will be in fine shape for marketing. When the bees have nearly filled one tier of boxes, it is well to have other boxes made of the same size, with a like entrance through the top and bottom, and raise up the first tier, which is nearly filled, and put the empty boxes under them. The bees will then continue work down from the top tier, and fill the second tier. Boxes should also have a piece of comb put into them, when possible, as it will induce the bees to go to work.

Advertisements.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING PULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-tf.

SMALL CHEESE VATS!

H. PEDLAR, Manufacturer, will send to any Railway Station in the Province of Ontario, (free of charges,) a first-class Cheese Vat, all complete, in running order, suitable for twenty to thirty Cows, on receipt of $30.

☞ All work warranted to give satisfaction.

Address H. PEDLAR,
v5-10-tf. Box 100, Oshawa, Ont.

FARM LOTS FOR SALE CHEAP,

in a good settlement, with every convenience.

Apply to C. J. BLOMFIELD, Sec.
Canadian Land and Emigration Co.,
Toronto Bank Buildings, Toronto. v5-8—4t.

JONES & FAULKNER,

(Late J. JONES & Co.)

Dairymen's Furnishing Store!

—AND—

DEALERS IN BUTTER AND CHEESE,

No. 141 Genesee Street, Utica, N. Y.

DAIRY necessaries of every description always on hand, particularly **Pure Annatto**, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.

☞ Special attention given to Canadian orders. v4-19-tf

CANADA WEST

FARMERS' MUTUAL & STOCK

INSURANCE COMPANY,

Incorporated by Act of Parliament, 1852.

PRESIDENT:

THOMAS STOCK, President of the Prov. Agricultural Association.

INSPECTOR:

W. A. COOLEY, Superintendent Prov. Agricultural Association.

12,700 Policies in Force.

AMOUNT INSURED, - - - $8,700,400 00
AVAILABLE ASSETS, - - - $ 60,300 00
CASH IN BANK OF MONTREAL, $ 14,600 00

A three years risk on Frame Barns and Dwelling Houses and contents, taken at One per cent. Premium, and no Premium Note required. Losses paid in full without deduction.

RICHD. P. STREET,
v5-6—6t. *Sec'y & Treas.*

JUST PUBLISHED,

PRICE TWENTY CENTS,

THE COTTAGE FLORIST!

A COMPENDIOUS AND PRACTICAL GUIDE TO THE

CULTURE OF FLOWERS

AND MANAGEMENT OF

FLOWER GARDENS,

ADAPTED TO THE PROVINCE OF ONTARIO.

JAMES BAIN,
King Street East, Toronto.

Will be sent free by post to any part of the Province, on receipt of the price in postage stamps.

Toronto, March 25, v5 7-34-e o t.

"RURIC,"

BY IMPORTED "SOVEREIGN," DAM "LEVITY," BY IMP. "TRUSTEE."

THIS Thorough-bred STALLION and RACE HORSE will stand at his Stables, on "The Hamilton Riding and Driving Park," two miles East of the City of Hamilton.

In 1864, RURIC was purchased by Col. T. G. Saunders, from R. Aitchison Alexander, Esq., the celebrated stock breeder of Kentucky, and brought to Canada in the summer of 1865, and is now owned by R. R. Waddell.

To encourage the breeding of good horses, the Terms will be as low as $10 for the season, payable at first service.

HUGH McLAUCHLIN, GROOM.
v5 10-2t. Drawer 37, Hamilton.

First Prize Cheese Vats!

TO THE DAIRYMEN OF CANADA.

THE UNDERSIGNED keeps constantly on hand the following articles: Cheese Vats and Heaters of all sizes and styles. Red Cherry Press Hoops and Followers, (turned). Screws of all sizes and patterns. Carrying Cans and Dairy Pails, of the best material. Bleached cotton Bandage Cloth, imported expressly for the trade; and everything required in the manufacture of Cheese

AT LOWEST REMUNERATIVE PRICES.

☞ My Vats took First Prize and Diploma at last Provincial Exhibition.

Address H. PEDLAR,
v5-10-tf. Box 100 Oshawa, Ontario.

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,
v4-20-tf Port Dover, Ont.

LAMB KNITTING MACHINE

Price Reduced to 58 Dollars.

IT sets up its own work, knits all sizes, narrows and widens, knits the heel into the stocking, and narrows off the toe complete—producing all varieties of knit goods. It is *simple, durable, easily operated*, and guaranteed to succeed in the hands of *every purchaser*. Send Stamp for Circular and sample stocking.

JAMES D. ORNE, *Gen. Agent.*
v5-8—tf. 176 State Street, Rochester, N. Y.

TO FLAX GROWERS.

THE undersigned will have, the present season, a supply of FLAX-PULLING MACHINES, which we can guarantee to do good work, having been fully tested last season. New improvements added this year. Send for cut of Machine and Price List.

OSWOLD & PATERSON,
Woodstock Iron Works.
1st May, 1868. v5-9-6t.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
187 King Street East. Medical Hall, Toronto.
v4-14-tf

HAMILTON
AGRICULTURAL WORKS.

L. D. SAWYER & CO.,
MANUFACTURERS OF
OHIO MOWER AND REAPER,
WOOD'S LIGHT MOWER,
Pitt's Trashing Machines, &c.
Send for catalogue.
L. D. SAWYER & CO.,
v5-11-1t Hamilton, Ont.

FARMERS AND GARDENERS
LOOK OUT FOR YOUR CURRANT BUSHES &c.
THE CHINESE
GARDEN POWDER!
DESTROYS ALL KINDS OF
Insects, Grubs, and Caterpillars,
On Currant Bushes, Plants and Shrubs. You will save money, labour and disappointment.
Prepared only by
HUGH MILLER & CO.,
Medical Hall,
v5-11-2t 167 King Street East, Toronto.

GEO. A. DEITZ,
The Great Seed Wheat Grower,
CHAMBERSBURG, Pa., sends free a Descriptive List of the best Seed Wheats in the world. v5-11-3t

FIRST PRIZE POTATO DIGGER.
THIS new and improved Potato Digger obtained the first prize at the last Provincial Exhibition. Gives entire satisfaction, and will harvest roots effectually, as fast as a team can walk Township and county rights for sale by the Inventor and patentee
ALFRED J. LEMON,
v5-11-1t* Lynden, Ontario.

FOR SALE,
THREE yearling **Durham Bulls**—two red and one roan. Apply to
GEO. MILLER,
v5-11-2t* Markham.

FARM NEAR WOODSTOCK!
TO BE SOLD OR LET—50 acres, 40 cleared; a large orchard, perpetual stream of water, frame barn, log house, &c. Land first-class. Apply to R. B. Butland, Toronto; or for leasing to the present tenant, Newman Pratt, Lot 18, 9th Concession, East Zorra, 6 miles from Woodstock, Oxford, Ontario.
v5-11-1t*.

J. H. THOMAS'
FIRST PRIZE BEE HIVES!
Persons desirous of purchasing territorial rights for my Hives, would do well to apply at once, as I will sell for the next two months, Townships at from $20 to $30, and Counties from $50 to $150.
J. H. THOMAS,
Brooklin, Ontario.
N.B.—Parties residing in the Counties of Carleton, Russell, Ottawa, Pontiac, Renfrew, Lanark, Leeds, Dundas, Stormont, Glengarry and Prescott, and desiring to purchase my hives, must in all cases address their orders to JOHN HENDERSON,
v5-6-tf New Edinburgh, Ont.

FARMERS, BY TOP-DRESSING YOUR CROPS WITH
LAMB'S
SUPER-PHOSPHATE OF LIME,
You will increase the yield 100 per cent., and ripen the crop ten to fifteen days earlier.
PRICE $40 PER TON,
Delivered free at Railway Station here. No charge for packages.
A FEW TONS OF BONE DUST
On hand, at $27 50 per ton. ¼ inch bone dust, $22 per ton.
Orders, with cash, will have our prompt attention.
PETER R. LAMB & CO.
v5-11-1t

Markets.

Toronto Markets.

"CANADA FARMER" Office, May 29th, 1868.

THE market has been very dull during the whole of last week, and prices of all articles have steadily declined.

Flour—The market has been very dull and irregular, and closes 75c lower than our last quotations. During the past few days a considerable decline in Montreal has taken place, and in consequence dealers here reduced their bids. It is doubtful if over $6.25 could have been got for No. 1 super to-day. There were sellers at $6.50 with no buyers.

Wheat.—The market has been very dull and unsettled. The demand was almost nominal. Prices have declined considerably, but in the present unsettled state of the market it is difficult to say what prices really are. The last sales of spring wheat in car lots were at $1.47. These prices were paid yesterday. It is doubtful if these sales could be repeated, buyers having reduced their bids considerably. Fall wheat sold yesterday at $1 60 and $1 65 in car lots, which were the last sales quoted. On the street market prices are as follows:—Spring, $1 40 to $1 45; Fall, choice, $1 52.

Oats—The market continues firm. Holders are asking 56c for round lots. 55c to 56c are the prices paid on the street, the latter price being generally paid in silver.

Barley—The market is dull and drooping. Car lots are offering at from 65c. to $1. A car sold at the latter price, but buyers will not generally give as much.

Peas—The market is dull and nominal; nominally worth 87c, with no sales within the past few days. Street prices 80c to 82c.

Rye—Worth on the market $1 10.

Potatoes—There is a fair supply. The current rates are 65c to 70c per bushel by the load, and 90c to $1 per bushel by the bag.

Apples—The market is dull; choice samples bring as high as $3. Dried, dull; worth $1.25 to $1.50.

Hay—As high as $21 was paid for a few loads to-day; prices ranged from $17 to $21.

Straw—Prices range from $11 to $14.

Provisions—The market is quiet, and there is nothing of interest to note. *Pork*—Mess is held at $23, with buyers at about $22. Selling in a retail way at $23 for choice. Prime extra quality held at $11. *Bacon*—Stocks very light; Cumberland selling at from 10c to 11c. *Hams*—Uncovered held at 12½c, and covered at 13½c, in retail lots. *Butter*—Market declining; dairy tub not worth more than 17c to 18c. *Cheese*—The stock is light, and good is scarce at 12c.

Montreal, May 27.—*Flour*—Superior extra, $7 90 to $8; Extra $7 70 to $7 80; Fancy, $7 40 to $7 50; Welland Canal superfine $6 75 to $6 90; Superfine No. 1 Canada Wheat, $6 75 to $6 90; Superfine No. 1 Western Wheat, $6 75 to 6 90; Superfine No. 2 Western Wheat, $6 50 to $6 60; Bag Flour, per 100 lbs. $3 35 to $3 45. *Wheat*—Canada Fall, none; Spring, $1 60 to $1 62½. Western, $1 65 to $1 70. *Oats*—Per 32 lbs, 47c to 48c. *Barley*—Per 48 lbs, $1 10 to $1 15. *Butter*—Dairy, 16 to 18c; store packed, 15c to 18c. *Pork*—Mess, $22 50 to $23 00; Prime Mess, $16 to $16 50; Prime, $15 00 to $15 50. *Dressed Hogs*—None. *Peas*—90c.

Galt, May 23.—*Spring Wheat Flour* $3 75 to $4. *Fall Wheat Flour*, $4 25 to $4 50. *Fall Wheat*, $1 60 to $1 65. *Amber Wheat*, $1 30 to $1 55. *Spring Wheat*, $1 50 to $1 55. *Barley*, 75c to 80c. *Oats*, 45c to 50c. *Peas*, 70c to 80c. *Butter*, 9c to 10c. *Eggs*, 9c to 10c. *Potatoes*, 45c to 60c.

Guelph, May 26.—*Fall Wheat*, per bush., $1 70 to $1 75. *Spring Wheat*, $1 48 to $1 53. *Oats*, 55c to 56c. *Peas*, 80c to 85c. *Barley*, $1 20 to $1 25. *Straw*, $3 to $4 per load. *Hay*, $10 to $13 per ton. *Eggs*, 10c per doz. *Butter*, 14c to 15c per lb.

Hamilton, May 26.—*Fall Wheat*, per bush., $1 58 to $1 65. *Spring Wheat*, per bush., $1 55 to $1 62. *Barley*, do, $1 10 to $1 20. *Oats*, do, 60c to 65c. *Peas*, do, 85c to 92. *Corn*, do, 65c to 70c. *Potatoes*, per bag, $1 25 to $1 50.

London.—Grain—*Fall Wheat*, per bush., $1 50 to $1 60. *Spring Wheat*, $1 40 to $1 44. *Barley*, 75c. *Peas*, 76c to 84c. *Oats*, 53c to 54c. *Corn*, 80c to 82c. Provisions—*Pork*—English prime mess, $18 50; prime mess, $14 50; light mess, $16 50; mess, $10; smoked ham, sugar-cured, 12c.

N. Y. Produce Market.—*Flour*, dull; receipts, 6,500 barrels, sales, 3,400 brls., at $8 90 to $8 60 for Superfine State and Western; $9 00 to $9 55 for common to choice extra State; $9 00 to $10 30 for common to choice extra Western; $9 60 to $13 25 for common to choice extra round hoop Ohio. *Wheat*, dull; receipts, 37,493 bush; sales of 49,000 bush., at $2 18 to $2 18 for No. 2 spring; $2 27 for No. 1 do; $2 22 to $2 23 for Nos. 1 and 2 do., mixed; $2 25 for amber Canada; $2 27 for White Michigan; $2 36 for winter red Canada, in bond. *Rye*, dull; sales, 4,000 bush. State, at $2 03, retail lots; Western, at $2 07 to $2 08. *Corn*, heavy; receipts, 134,276 bush.; sales, 133,000 bush., at $1 00 to $1 10 for new mixed Western afloat; closing at $1 09 to $1 08½; $1 16½ for old do in store. *Barley*, nominal. *Oats*, dull; sales of 26,00 bush, at 86c to 89c Western in store. *Pork*, lower, at $23 40 to $26 50 for new mess; $27 05 to $27 75 for old do. *Lard*, quiet and dull, at 18 7-8c to 19c.

Contents of this Number.

	Page
THE MONTH	161
THE FIELD:	
Weeds	162
Wild Oats	162
Potato Growing	163
Hay Tedder	163
Prize Potato Digger (with cut)	163
Varieties of Wheat	163
Cabbages, Kohl Rabi, and Rape	163
The Value of Town Sewage	163
CANADIAN NATURAL HISTORY:	
The Skunk (with Illustration)	164
How to Skin a Bird	164
Curious Freaks of Birds	164
Mammoth Pigeon Roost	164
STOCK DEPARTMENT:	
The Circulation of the Blood (with cuts)	165
Discussion on Washing Sheep	165
Good Weights and Fleece	166
THE DAIRY:	
American Dairying	166
Cheese-making—A Plea for Reduction in Price	166
Early Cut Hay for Milch Cows in Winter	167
POULTRY YARD:	
Pigeons	167
Recent Importations	167
CORRESPONDENCE:	
The Agricultural Bill	168
Farming in Quebec	168
Farm Notes	168
Order and Cheerfulness	169
Balance Sheet Addenda	169
Notice to Secretaries of County Societies	169
EDITORIAL:	
Monthly Fairs	169
Immigration and Colonization	170
AGRICULTURAL INTELLIGENCE:	
The Crops	170
Dominion Ploughing Match	170
Wool Exposition	171
Sheep and Shearing Exhibition	171
Officers of Agricultural Societies	171
Maine Agricultural State Fair	171
Short Horn Bull "Prince of Solway"	171
Exchange of Seed with Russia	171
Agricultural Operations	171
ENTOMOLOGY:	
Entomological Report (Illinois)	172
Caterpillars on the White Cedar	172
Singular Cocoons (with Illustration)	172
Privet Moth	172
HORTICULTURE:	
Fruit Growers' Association	173
Hamilton Horticultural Society	173
Save your Plums	173
Questions on Pear Culture	174
POETRY:	
The Waning Moon	174
THE HOUSEHOLD:	
Home Influence of Country Life	174
The Open Fire	174
Keeping Furs	174
Rich without money	174
Preparation of Whitewash	174
THE APIARY:	
Surplus Honey	175

THE CANADA FARMER is printed and published on the 1st and 16th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 20 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for..... NINE DOLLARS.
TWENTY COPIES for..... SIXTEEN DOLLARS.
FORTY COPIES for..... THIRTY DOLLARS.
ONE HUNDRED COPIES for..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director.

VOL. V. No. 12. TORONTO, CANADA, JUNE 15, 1868. POSTAGE FREE.

The Field.

Alsike Clover.

THE following is an extract from a farm journal:—

"23rd May, 1868.—Made the weekly inspection of the farm. Went first to the Colt Ground, where the span of colts, now three years old, are growing into the future team. This place consists of four acres, fenced in with Black Ash pole or log fence, so high that they cannot jump over, and so strong that they cannot break through. This is the true way to prevent colts being breachy. The pasture is very rich, and is more than will be necessary to support the colts during the season.

"I noticed the Alsike clover particularly, which is now about five inches high. It possesses one unusual peculiarity, viz., that of doing best in the holes covered or nearly covered with water during the winter and spring. No doubt this is a valuable property as compared with red clover, which will not stand such hardship. Another thing to recommend its use is, that before timothy or red clover is ripe enough to cut for hay, the top flowers of the alsike are ripe, and shed their seed, which seem to catch at once and grow, as I find vast numbers of young plants only two inches high, the result of last year's haying. Our colt pasture is an uneven piece of land, and the roots and stumps not out sufficiently to enable us to level it yet."

This property of withstanding water in the winter and spring renders it a very useful plant for undrained farms, and reminds us of the native place of the Alsike clover, which was first discovered in the ditches of the fortification of "Alsike," in Sweden.

Prolificacy of the Thistle.

To the Editor of THE CANADA FARMER:

SIR,—I have known you return your thanks for specimens of ripe strawberries, forwarded to you for trial; but the enclosed specimen of *seedling thistles* is entirely wanting in those mouth-watering qualities of which a ripe strawberry is so eminent a provocative, yet it may be of much more importance when gravely considered in its threatening aspect. My object in sending you these is to demonstrate the fallacy of Peter Shisler's assertion, published in a recent number of your journal, where he randomly asserts "Not one in a million of the seeds of the thistle grow." I have seen them so thick on ploughed ground this month that you might count fully 150 to the square foot. The bunch in the centre, with the thread around them, is just as they were lifted, and too thick to count; the others are selected of different stages of growth, to show what they are. With your permission I will give a rejoinder to Peter Shisler's letter in your next issue, over the signature "Publicola."

W. BURGESS.

Mimico, May 29th, 1868.

NOTE BY ED. C. F.—We gratefully acknowledge the compliment paid us by our correspondent in believing that we feel no "mouth-watering" after thistles, and assure him that we hold them in utter aversion. We have caused the specimen of seedlings forwarded us to be engraved life-size, to give ocular demonstration of the prolificacy of this detestable weed, and to point an argument for stirring the soil with cultivator, harrow and horse-hoe, in order to secure its destruction. It is easy to exterminate weeds in the early and feeble stages of their growth. Merely a disturbance of the soil then suffices to destroy them, whereas when once they are rooted, it is a matter of extreme difficulty to get rid of them. We hardly think there is ground for controversy between our present and former correspondent. Speaking in a general, hyperbolical sort of way, one may say that not one in a million of these seeds vegetates, for it is quite evident that only a small proportion grows, inasmuch as a single thistle plant will throw upwards of 11,000 seeds, according to the estimate of Dr. Lindley, given in our last issue, under the head of "Weeds." We cordially second the most fierce and furious crusade against them. The publication of actual experience in attempts to get rid of this troublesome pest, though the statements may sometimes perplex by their apparent contradiction, cannot fail to be of service, and ultimately lead to effective methods of destruction.

Chinese Yam.

Dioscorea Batatas

To the Editor of THE CANADA FARMER.

SIR,—Having fully investigated the character and merits of this yam, I have some positions to announce in regard to it, which I should have much hesitation about advancing, if I were not well assured of their triumphant verification by my countrymen. I assert, that this esculent, by its concentration of each useful property, transcends in importance every other edible vegetable of the earth, and that it is destined to supersede the tropical and unreliable potato in all northern climates. The combination of its admirable properties as food for man, constitute it also the most estimable vegetable boon, and the most nutritious aliment, for man and domestic stock, which God and nature, in their all-pervading beneficence and benign provision, have bestowed upon the inhabitants of our globe. I shall discuss all these points on a future occasion in the ample sense to which they are entitled. The present article is intended solely to impart such practical facts and advice in relation to the plant as will aid those who are now commencing its culture. I desire, however, to make known that there are more than fifty varieties of various colors and forms, and varying in length from seven inches to two feet.

CHARACTERISTIC POINTS.—This yam is a native of the northern limits of the temperate zone, and will flourish in the coldest regions of our country, and of the British Territories, and will endure, everywhere, the winters in the open ground. Its produce is more than double the crop of any potato, and it never rots. It will flourish best on the now useless sandy lands of New Jersey and Long Island, and of the entire coast range, and it will also succeed on any other soil but a stiff clay. It does not require replanting annually, but reproduces abundant crops from the fragments and small tubers that are left in the earth. There can be no fragment, however diminutive, that will not vegetate. From tubers, the roots attain ten to twelve inches in length, and weigh four to six ounces. From sections of the root, such as used for the regular crop, the roots attain eighteen to twenty-four inches in length, and weigh from half a pound to one and a half pounds, and often more. A plantation of this yam, is in China termed "a Permanent Magazine of Food," and the roots may be dug fresh for use daily, from early spring to winter, thus furnishing new yams continuously. It

is more palatable than the best Mercer or any other potato. Its taste and flavor are intermediate between the finest potato and arrowroot, of an exceedingly delicate farinaceous character, and like the potato, it is devoid of all insipid sweetness. It is free from any ligneous or fibrous substance, and possesses the peculiar property of not being subject to rot or decay, but will remain perfectly sound and excellent in a dry state for a year, thus rendering it exceedingly valuable for long sea voyages, and for the prevention of scurvy. It is much more nutritious than any other edible vegetable used by man, and more so than wheat or any other grain. It is the only vegetable of all the earth which combines an ample portion of Azote, the grand constituent of animal substances which impart vigor to the muscular power of man and beast; and it is by the possession of this essential equivalent in this esculent that the use of animal food is rendered unnecessary by the Chinese and Japanese nations, whose immense populations comprise nearly one-half the inhabitants of our globe.

The culture of this most estimable and productive of all vegetables, on the sandy soils of the south side of Long Island, and throughout the sandy region of the Atlantic portion of New Jersey, which are of a character precisely adapted and congenial to its growth and development, and where the crops will consequently be much greater than in other locations, must impart a value to those lands which no one has yet anticipated; and they may soon command higher rates than any of the firm soils of the north side of he Island or of the upper section of New Jersey.

PREPARATION OF THE SOIL.—The ground for planting tubers should be rendered mellow and permeable to the depth of fifteen inches, and for roots to the depth of twenty inches. Old decayed stable manure, or decayed peat or wood mould, should be mixed moderately throughout. Over-manuring is injurious, and poudrette is unsuitable.

PLANTING.—The season for planting is as soon as the freezing has ceased, and the ground has become settled.

Tubers.—These should be planted in a double row—the rows twelve inches apart, and the tubers ten inches apart in the rows.

Roots.—The sections of root should be about one and a half inches in diameter. They should be planted in a double row—the rows fifteen inches apart, and the roots at twelve inches apart in the rows.

There is no plant whose culture is more simple and easy than that of this yam.

Its extensive cultivation promises to our country a vast and inexhaustible resource, derived from such soils as have hitherto been most unproductive and unpromising. It will supersede and far more than replace the failing and uncertain crops of the potato, with the addition of this potent and comprehensive fact, that this esculent will succeed and yield ample and reliable crops throughout all the northern sections of the country, where the potato never has been, and never can be grown with success.

WM. R. PRINCE,
Linnæan Nurseries.

Flushing, New York, May 16, 1868.

NOTE BY ED. C. F.—We publish the foregoing communication, without, of course, endorsing it, having had no experience of the yam in this country, though many years ago our lot was cast where it was a principal article of diet. Our American exchanges speak favorably of it; and experience only can determine its value as a Canadian farm crop. There could be no harm in a cautious experiment next season, the time having passed for trying it during the present year. No Canadian will agree with our correspondent's assertion, that potato-growing has proved a failure in the north.

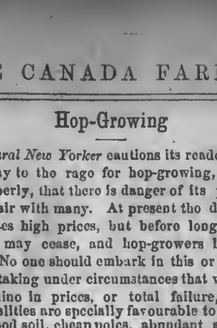
THE YELLOW ABERDEEN TURNIP has been found one of the most profitable varieties for field cultivation, being more solid and substantial, and containing more nutriment than most of the flat turnip family. W. A. Underhill, of Croton Point, N. Y., who has had much experience and success with root crops generally, has raised his own seed of the Aberdeen for the past fifteen years, continually selecting the best and most compact specimens for this purpose. He informs us that during this period he has improved the variety so much, that they weigh five pounds more to the bushel than at the commencement of his experiments.—*Country Gentleman.*

Hop-Growing

THE *Rural New Yorker* cautions its readers against giving way to the rage for hop-growing, and says, very properly, that there is danger of its proving a losing affair with many. At present the demand for hops causes high prices, but before long this state of things may cease, and hop-growers burn their fingers. No one should embark in this or any similar undertaking under circumstances that would render a decline in prices, or total failure, ruinous. Some localities are specially favourable to this business. Good soil, cheap poles, abundant and cheap help, exemption from insects, and proximity to market, form a combination of most advantageous circumstances in certain cases. Still, prudence is wise and commendable. Especially is it of importance that no one should be in such hot haste to go into this business as to attempt to make a hop garden unless the land is in a good, rich, clean, mellow state. We know of some who are attempting to transform poverty-stricken sod ground into a hop-yard. They will find it up-hill work, and accomplish but little for their pains. Land of the very best description, with a deep tilth, and free from weeds, is necessary to success in hop-raising, and it is far better to spend one season in thoroughly preparing the ground, than to plant under circumstances that forbid the hope of satisfactory results. In such cases the maxim is of pertinent application, "make haste slowly."

A Handy and Powerful Lever.

IN working in soft ground, whether at pulling stumps or moving stones, the great want is a firm place to set the lever. We exhibit in the accompanying engraving a lever, which requires a very simple base, and if rigged with a pulley or "block and tackle," as shown, may exert a great lifting power. For such lifts a crooked lever has many advantages. We witnessed, a short time since, the operation of such an one, and were struck with its utility. The ring to which the powerful inch-iron



hook is attached should perhaps pass through the bar closer to the inner angle than is represented. It might equally well be made so as to slip over the bar and hold in a notch on the inner side. Such a lever may be seven to nine feet long, and made of oak or hickory. It may be operated by hand, by attaching the upper end of the rope to a stump and pulling down upon the lower end; or by horses or cattle, by fixing the lower end and carrying the upper one off to where the team may be conveniently and efficiently used.—*American Agriculturist.*

LIMING HAY.—Liming hay that is put into barns in a partially cured state has been recommended by numerous agricultural writers within the past three years. A contributor of the *Prairie Farmer*, Chicago, gives corroborative testimony in favor of air-slacked lime for preserving clover hay which had been imperfectly cured. He says he applied a peck of lime to the ton—sprinkling each layer as it was put into the mow. The result was, it came out bright and green—all stock eating it greedily, and thriving well upon it. Clover and some other grasses lose much of their nutritive properties by being cured overmuch, or if left in the field too long, exposed to sun, rain, and dew.

Haymaking.

GRASS and clover, when ready to be cut down, contain a considerable quantity of sugar, gum, mucilage, albuminous and other soluble compounds, which are all liable to be washed away by heavy showers of rain. As long as grass is still quite fresh, rain falling upon it has little or no injurious effect, for fortunately a coating of waxy or fatty matter covers the epidermis, and wraps, so to speak, the whole vegetable matter in a waterproof mantle. Rain, for this reason, may fall for days on newly cut grass without doing any injury to it; but the case is very different if, by repeated turnings, the crop has become more or less bruised and rain then descends upon the half-made hay; not only are sugar, gum and other soluble matters then liable to be washed out, but the bruised state of the plants, admitting at least a partial diffusion of the various constituents through the lacerated cell-walls, induces fermentation, which, if not checked at once, causes further loss. During the fermentation soluble albumen and sugar are destroyed—two of the most valuable elements of nutrition. In showery weather, grass recently cut should, for this reason, not be turned over more than is absolutely necessary, and under all circumstances it is desirable to handle the crop as lightly as possible, in order that it may not get much bruised.

I have seen farmers spending labour in turning hay on overcast days, on which a dew-point hygrometer showed the air to be nearly saturated with moisture, proving that evaporation could not possibly take place at the time, and rain might be expected at any moment.

As long as grass and clover are still quite fresh, the proportions of water to sugar in the green plant are too large to encourage fermentation; the nitrogenous constituents in newly-cut grass, moreover, only become ferments after the vitality of the plant has been destroyed, and the vegetable cells and vessels have become ruptured by partial drying, and their contents have been mingled together. With the evaporation of water, and the more or less complete destruction of the living organization of the plant, the conditions become more favourable for active fermentation. Should the weather unfortunately turn showery at that stage of the haymaking process, and the air become saturated for many days and weeks together, the half-made hay often begins to ferment already in the field. When this takes place, the hay loses in quality, and becomes much more liable to heat afterwards in the stack. If, on the contrary, fine and warm weather sets in, and evaporation sets in with rapidity, the percentage of moisture soon sinks sufficiently low to prevent altogether, or greatly to retard, fermentation. The hay remains sweet and shows far less tendency to heat in the stack, even if it actually contains more moisture than hay made in unfavourable weather. The more quickly the hay can be made in the field, and the less it gets bruised, or loses colour there, the less likely it is to heat in the stack. Much hay is injured, however, when it is quickly made and in a fine season; it looks to be ready before it is so.

If dried ever so much and ever so carefully in the field, hay nevertheless heats to some extent in the stack. A slight fermentation, so far from being injurious, may be useful, for, as is well known, peculiar aromatic principles are thus generated, which certainly renders hay more palatable, and, it may be, more nutritious. As long as the green colour is retained, there is no danger of the hay losing in quality, but if the heat in the stack becomes so intense and continuous as to turn the hay decidedly brown, I have no hesitation in saying that considerable loss in feeding matter is incurred.—*Dr. Voelcker in Journal of Royal Agricultural Society of England.*

Ditching Machine.

A DITCHING machine has recently been brought out and patented in the United States by an American inventor, which is well spoken of by parties who have seen it in operation. It is known by the name of the Sawyer and Barber Ditching Machine, and is manufactured by A. D. Ricket, Arlington, Ohio. It can be worked, we understand, with one horse, and is said to be adapted for almost any ordinary soil. Farmers in Northern Ohio, we are told, are using them extensively. In that section of country it is customary for the owners of this machine to execute ditching at the rate of ten cents a rod. The machines are made of different sizes, the smaller, to cut from one to three and a-half feet in depth, and the larger to cut from one to four feet deep, and eight or nine inches wide. There are many places in this country where such a machine is much needed.

Transmutation of Species.

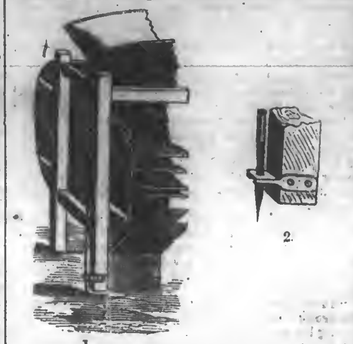
WE were surprised to find in the columns of a contemporary daily paper recently a statement, on the authority of Elihu Burritt, that in a field near St. Ives, in England, a crop of barley was produced from oat seed. The thing, it is needless to say, is simply impossible. We are all familiar with the changes that result from hybridization. These are numerous and remarkable, but have, nevertheless, their limit, and never, under any circumstances, effect the transformation of one species into another. No amount of crossing would produce a horse out of an ass; and just as absurd would it be to expect by any process to transmute oats into barley, or any other distinctly marked species among the cereals. The subject brings up the long-vexed question of the conversion of wheat into chess, of the probability of which, notwithstanding the strongest evidence to the contrary, some not very close observers are still confident; and one of this class has even ventured to back his opinion by a wager to the amount of $1000, that he will grow wheat from chess. On this subject we quote the following very just remarks from the *American Agriculturist:*

WHEAT—CHESS—A $1,000 OFFER.—Some still complain because we do not open our columns to a wider discussion of this subject. We have been looking into the matter for more than twenty years past—have studied it in its scientific relations—have received and read thousands of pages of manuscript, pro and con—have offered prizes, and had men come hundreds of miles with specimens to claim the prizes, and seen them return perfectly satisfied that they had made a mistake. We doubt not that many are honest in their belief that wheat will really produce chess; but we are just as sure that it will not—can not; and while seeking to devote our columns to such topics as will most benefit the largest number of our readers, it does not seem profitable to take up further space on this particular subject. Please allow us the same liberty of judgment in this respect, that we cheerfully accord to others.—We will only add here, that Mr. L. Gore, Chagrin Falls P.O., Ohio, an old and successful farmer, is fully convinced that wheat will turn into chess, and to show his faith, and, if possible, settle the question, he offers to wager $1,000 that he can produce chess from wheat or rye, or both. His neigebour, Mr. David Robinson, will make affidavit that he has taken a kernel of chess from a wheat stalk, where it certainly grew. Mr. Gore's directions for securing the change are as follows: 1st. Sow rye in spring, and pasture it all summer; the next spring it will yield chess. 2nd. Sow winter wheat, or rye, or both in June, pasture until December, and let it grow the next season.—If any are disposed to try the question with Mr. Gore, they can correspond with him—we give his full address above. We have not time to take part in the correspondence, but we advise Mr. G. to look out for his $1,000, if an enterprising man should accept his proposition. Perhaps he could not better use the money for the good of mankind, than to lose it in "settling" this "vexed question." Please excuse us, if we do not publish or answer the next hundred letters that come in about Wheat *vs.* Chess.

GROWING WATERMELONS.—At a recent meeting of the Herkimer County Farmers' Club, Judge Owen stated that he had a piece of land ploughed a foot deep, turning up the clay subsoil, which he planted with watermelons. The plants came up; but the sun dried and hardened the clay, and the vines did not thrive. He then went to the dung heap, and took from the centre a wheelbarrow load of manure that had thoroughly decomposed into a black mass. This was thrown into a barrel filled up with water. Commenced watering the plants with this liquid, and directly they began to grow vigorously. Thinned out the plants to two in a hill, and continued the application of the liquid, filling up the barrel with a fresh lot of manure and water from time to time. When the plants got fairly under way, they would make a growth of ten inches in twenty-four hours. Finally thinned out, leaving only two plants, and they in time covered all the ground. These made an enormous yield. One of the melons weighed twenty-eight and a-half pounds: six others weighed one hundred and twenty pounds. From this patch he picked all the melons he wanted for family use, and for the entertainment of his friends, and to close up in the fall he took off half-a-dozen wagon-loads of unripe melons. This satisfied him that the best way to apply manure to vegetables is in a liquid state.

Fixed Foothold for a Fan-Mill.

BARN floors are somewhat uneven, and fan-mills have not weight enough to stand steadily when turned with a strong arm, to give a forcible blast, so they slide and dance about unless fastened by cleats or otherwise. Mr. Ellwood Hughes, of Fowlersville, Penn., sends the *American Agriculturist* the following description of an attachment to his fan-mill, which he finds of great service: "A bar of round ¾ iron, long enough to turn a short handle above the top of the leg of the fan-mill, has a thread cut at the bottom and passes through a nut fastened at the bottom



1.

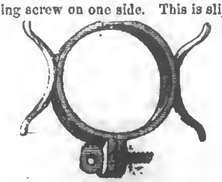
2.

of the leg. The end of the rod is sharpened to a point so as to take hold in the floor, and the top passes through a staple in the top of the leg. Such a rod should be attached to two of the legs of a fan-mill, so that they may be screwed down to take hold in the floor. Thus the mill will retain its place while in use, and stand level, no matter how uneven the floor. When one has done using the mill the rods may be run up, and then the mill will slide smoothly over the floor." Figure 1 shows a portion of the fan-mill with the rod attached, and fig. 2 gives the screw at the lower end of the rod with the nut.

WHETSTONE HOLDER AND GUARD.—In using a stone for sharpening a scythe, beginners or inexperienced persons often cut their hands against the edge. Then, again, the best stones are usually fragile and likely to be broken into pieces too short to hold in the hand. We bought in London a little instrument use-

1.

ful in both of the above cases. Fig. 2 is a little ring of zinc-coated iron, with four flanges or prongs and a tightening screw on one side. This is slipped over



2.

a wooden handle cut out in the centre like a clothespin, (fig. 1). A whole stone, or a broken half of one, is securely fastened by turning the screw, which enables one to use up fragments, or to use very short stones; while the flanges guard the hand from being cut, if a wrong movement happens to be made.—*American Agriculturist.*

Plaster as a Manure.

GYPSUM, or plaster of Paris, is a sulphate of lime, in other words, a combination of lime and sulphuric acid in certain proportions. It is found in certain localities in the form of a hard, white, semi-opaque rock, which is dug out or blasted, placed in kilns, and subjected to a strong heat, which drives out the water, &c., and renders it brittle; it is then ground fine in mills erected for the purpose. When first ground it is very dry, but by exposure to the atmosphere gradually imbibes water, which adds greatly to its weight. It can hardly be called a manure of itself, for it only acts as an absorbent of ammonia and other salts that exist in the moisture of the atmosphere. Its good effects are most manifest when applied as a top dressing to clover, peas, and other leguminous crops, at the commencement of dry weather, when, from its absorbent power, it draws and retains the moisture from the night dews, (which contain much ammonia,) to the roots of the young growing plants. It also greatly benefits corn, potatoes, and other hoed crops, when applied sparingly to the surface of the soil, close to the young plants, when they are two or three inches high. 100 lbs. per acre is about as much as will be necessary to sow on clover, but more may be sown with advantage where the soil is deficient in lime. The lighter and drier the plaster is the better, and it should be kept in tight barrels in a dry place till wanted for use, as if once it gets wet its value is destroyed.—*Ex.*

The European Larch.

THIS is well known as a beautiful ornamental tree, and as such is to be found in most gardens that have any shrubbery about them. From its quick growth, the *Country Gentleman* recommends its culture for timber, and estimates that in twelve years the larch crop on an acre of ground would be worth twelve hundred dollars, thus giving a yield of one hundred dollars per annum to the acre. Our cotemporary also advises the use of this tree as a screen, since though it is deciduous, it affords a much better protection than other trees which drop their leaves, on account of the profusion of small shoots which break the force of cold winds. The larch is easily grown from seed, which should be sown half an inch deep in beds of fine, rich mould, and shaded from the sun the first season.

WHAT OUR FARMERS REJECT.—The Ogdensburgh *Journal* says:—The canal boat *Solon F. Case* is at Anvil's dock in that city, taking in a cargo of leached ashes, which have been purchased from the asheries there. These are taken to Long Island and Connecticut, and sell at from eighteen to twenty-five cents per bushel as a fertilizer. Yet, says the Mitchell *Advocate*, here, where our farmers can get them for nothing, they are rejected as worthless. Science and experience, however, teach otherwise, and we find those who possess the knowledge coming nearly a thousand miles to procure what our farmers reject."

WORMS IN CORN.—If your cornfield is troubled with worms, scatter salt around the hills in small doses of a handful to a half-dozen hills, or at the rate of five or six bushels to the acre. Mr. Greeley has tried it; and finds that nine-tenths of the worms in the ground are killed by it, particularly the wire-worm.

SHOULD POSTS BE PLANTED UPSIDE DOWN.—A correspondent of the Farmers' Club, American Institute, says he has tried both ways—that in which the tree grew, and reversely—and in ten years' trial has found no practical difference.

HOPS.—People entering into the hop business had better count the cost before commencing, lest they hop out faster than they hopped in.—*Cor. Country Gentleman.*

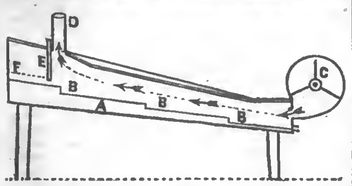
Bones and Ashes.

BONES and ashes pass through the housekeeper's hands every day. Wood is still the chief fuel in the farm-house and the value of the ashes is pretty well understood. They are prized for the lye they yield, and if there is a surplus from the soap-making they help the kitchen garden at the back door. The bones are generally thrown to the dog and lost. Now if the careful housewife would save the bones as regularly as the ashes, she would practise a wiser economy and help her kitchen garden twice as fast. Bones are worth twice as much as ashes for manure, if dissolved, and the ashes will reduce them. Put both into a barrel in the cellar, if you please, and after mixing them half and half, keep them constantly moist with soapsuds, the hotter the better. The ends should not be poured on in such quantities as to leach the ashes. In a few months the bones will be disintegrated, and the whole mass may then be mixed and will make an excellent fertilizer for the flower border or the kitchen garden.—*American Agriculturist.*

The Dairy.

Milk Cooler.

AMONG the contrivances the need of which has been seriously felt by cheese-makers on the factory system, is an efficient method of rapidly reducing the temperature of new milk, and depriving it of some portion of its animal odour. In the States various contrivances for the purpose have been patented, the principle of which is to pass the milk in tubes arranged in coils, through cold or iced water. This plan will, no doubt, lower the temperature, but seems to us deficient in the important point of removing at the same time the odour of the milk. An invention has recently been patented in this country which seems to combine both the desirable points. This contrivance was invented by Mr. F. Oakley, of Bond Street, Toronto, and is represented in the accompanying illustration. The apparatus is very simple, and will be at once understood by a reference to the drawing, in which the principle of the operation and the various parts of the mechanism may be clearly seen. These last consist of a covered trough (A), with a series of steps (B) (B) on an inclined plane, a fan blower (C), worked by hand or any available power, a chimney or air duct (D), to carry off the warm and impure air, as shown by the arrows, a movable sluice or floodgate (E), to regulate the flow of the milk, a strainer (F) to remove hairs, &c., that might be in the milk.



To this might be added, around the compartment which receives the milk, receptacles for ice, which would still further aid the cooling effect. This improvement is, we believe, contemplated by the inventor. The principle might also be advantageously applied to other processes besides cheese-making.

Rearing Calves.

THE following is an extract from an essay on "Dairy Stock and its Management," read by Mr. Phineas Stedman, of Chicopee, before the Franklin (Mass.) Farmers' Club:

We come now to our second topic, viz.: "The management of dairy stock." It is of the first importance that all farm stock be kept in a thrifty, growing condition. It is much easier to keep a young animal growing, than it is to start that animal after it has, by want of care or proper food, been allowed to stop growing. Could every farmer be properly impressed with the fact that when a young animal is fed only sufficient to maintain its present condition and weight, that amount of food is lost, an important point would be gained. I know of no single item in which we suffer so much loss.

The best method of rearing dairy stock will vary with different individuals. To rear calves dropped in spring, a good, and I think economical method, is to put two calves to a cow, (provided one not too valuable is at hand,) and turn to pasture. I prefer, however, to have them dropped in autumn, or between October and January. They may be allowed to take the milk from the cow at regular intervals, or be taught to drink the milk, and at three or four weeks old, skimmed milk may be substituted, and the calves will thrive well, with the addition of good hay and provender. For provender, I know of nothing better than a mixture of unground oats and linseed meal, in equal parts. At three months old, an ordinary calf will take two quarts of this feed and a small quantity of roots, without injury. Calves dropped at this season, have several advantages over those dropped in spring. They usually receive better and more regular care, are better prepared to endure the cold of the succeeding winter, and until they arrive at maturity, always hold an advance of several months, in age and size, while reckoned in the same class.

Over-Production of Cheese in the States

CANADIAN farmers and dairymen may derive many useful lessons from the experience of their American neighbours, who are older in the business than those on this side the border; and though we do not think there is any just cause for discouragement in the present prospects of Canadian cheese-making, yet it is as well to take timely warning, and avoid the evil of multiplying factories too closely together; and especially is it necessary to bear in mind that nothing short of the highest excellence in the article manufactured will ultimately render cheese-making profitable. The following remarks, by X. A. Willard, Esq., on the production of cheese in the United Sates, deserves the thoughtful attention of Canadian manufacturers:—

"The prospect of American cheese dairying cannot be regarded so remunerative a business in the future as in the past.

"The opinion has gone abroad that there is no branch of farming so profitable as the dairy. The consequence is that many are changing their system of farming, and rushing into cheese-making, when really better results would be secured by keeping steadily along in the business with which they are familiar.

"Dairying is now so extended that it will need the best united efforts of producers to make the business pay. Every increase is fraught with danger, and it is important that correct and reliable information be disseminated in regard to the extent and profits of the business.

"In the first place it may be well to inquire what the production is, and what the increase has been during the past eight years.

"According to the census of 1860, the production of cheese in the New England and the Middle and Eastern States was 101,000,000 pounds. New York then made 48,548,289 pounds; the Eastern States 21,620,986, and Ohio 21,618,893 pounds. According to the last New York State census, the cheese sold from the factories and dairies of New York alone, in 1864, amounted to 72,195,337 pounds. We know there has been a large increase of dairies in the State during the past four years, and from the best information I can get, New York is producing, in an average good year, at least 100,000,000 pounds.

"The increase in the Eastern States has been large and probably will not fall short of 40,000,000, while the Western and Middle States, New York excepted, must be at least 50,000,000. We have, then, 200,000,000 pounds of cheese as the product of the States, exclusive of the Southern and Pacific States and Territories. If to this we add 15,000,000 for Canada, we have the immense annual product of 215,000,000 pounds.

"We are exporting to Great Britain from 50,000,000 to 60,000,000, which leaves 160,000,000 pounds to be worked off among our own people.

"It must be evident that we cannot go on increasing this business without over-production, and those about entering upon it may well hesitate before making investments.

"As to the large profits from dairying, if the past year is to be a sample, it will require a magnifying glass of more than ordinary power to see them. Many have barely made the ends meet, and some have not been able to pay expenses."

Salting Butter, &c.

As to the quantity of salt to be used for butter, something will depend upon its manufacture and the market for which it is intended. The Orange county butter makers, who obtain the largest prices for their product, use at the rate of a pound and two ounces of salt for a batch of twenty-two pounds of butter. For winter butter, or butter designed for winter use, a little more salt is used at the last working.

There is a difference of opinion among butter makers in regard to washing out the buttermilk. We are strongly impressed that butter will keep best that is properly washed. It is the caseous or cheese particles in the buttermilk, the decomposition of which causes the butter to become frowsy or rancid. The more perfectly these are expelled the better will the butter be preserved sweet and sound. Washing properly, to our mind, secures best that result. It is certainly much less work to get rid of the buttermilk by washing, than by the "kneading process," besides there is less danger of spoiling the butter by overworking, since overworking injures the grain, rendering the butter salvy. It is claimed by some that when the buttermilk is worked without washing a more delicate aroma is retained, and this principle is observed in Holstein and Normandy, where a very superior butter is manufactured for the London market.

We have tested hundreds of samples of butter in London which came from France and Holstein. The butter is very slightly salted, and when fresh, has a most delicious flavor, but much of it does not keep well.

A most important point to be observed by buttermakers who hope to make a reputation for fine goods, is to pack in suitable tubs or packages. In our opinion, there is no wood so suitable for butter packages as white oak. The timber should be well seasoned, and the packages strongly hooped, so as to be water-tight. No leaky package can preserve butter for any considerable length of time.

In salting cheese, much will depend upon manufacture and the time it is desired to have it ready for the market. From two and a-half to three pounds of salt are usual for one hundred pounds of curd. The usual quantity at the factories is 2.7-10 pounds salt to 1,000 pounds of milk. In spring, when it is an object to have the cheese go into market early, 2½ pounds salt, and even less, are used to the 1,000 pounds of milk.—X. A. WILLARD, in *Utica Herald*.

DAIRY MEETING AT STOUFFVILLE.—The Markham *Economist* says the dairy meeting at Stouffville, held on the 3rd inst., passed off very agreeably. The result is that the Stouffville Factory was to go into operation on Wednesday, 10th inst., with the promise of about 100 cows to start with, and a prospect of considerable increase.

☞ In France, milk is packed in small tin cans, easily moved by one man, and by a simple contrivance the stopper screws close down upon the contents of each can, so that the motion of the railway cannot churn the milk *in transitu*. The cans are then placed in covered waggons, and in summer are wrapped in cloths, which are watered from time to time so as to promote coolness by evaporation. The result of this care, which costs but little, is that the milk supply of Paris is proverbially excellent.

MILKING MACHINES.—A correspondent of the N. H. *Mirror* and *Farmer* gives his experience with one of these machines. He saw them advertised, and bought one, paying $7 for it and $5 for the right to use it. He says: "I tried it on an easy milker, and after a good deal of effort succeeded in getting it adjusted on the cow's teats, and by working it could draw some milk, but by the time the cow was half milked the teats would not fill the cups, and the machine would drop off, there being no suction. I wrote to the agent, stating the difficulty, and asking to be referred to some one who had one in successful operation. The agent replied, giving no reference, probably for the all-sufficient reason that there was nobody to refer to, but saying that I must persevere, for it required a good deal of practice to learn to use one. I and my hired man tried until we supposed that we had exhausted all our mechanical talent, but without success, and laid the machine by, which the agent can have at a very large discount."

NEW CHEESE HOOP.—At a late meeting of the Herkimer County Farmers' Club, Mr. E. Ellis exhibited a new cheese hoop which had been recently invented and patented. Mr. Ellis said there was great complaint among dairymen in regard to removing the cheese from ordinary hoops, and Mr. Purdy, who had been with him for some time manufacturing the common wooden hoops, had turned his attention to the subject in order to obviate the difficulty. As a result, he had brought out a new hoop, which had been patented, and he thought it an improvement. The hoop shown was of galvanized iron, arranged with an ingeniously constructed clasp, so as to be in a moment unlocked, when the hoop opens and the cheese can be taken out. This seems to be a very desirable article. It is very simple in its arrangement, being readily locked or unlocked in a moment.

Stock Department.

The Circulation of the Blood.

UNDER this head the course of the circulation was described in the last issue. It is now proposed to resume and complete the brief notice of the subject in the present article. The division of the heart into four chambers, the purpose of the arrangement, the contractions of this muscular organ, and the valvular apparatus by which the blood is propelled in one particular course, have been already explained: two phenomena, however, connected with the heart's action remain to be noticed, viz., the impulse or beating of the heart, and the sounds that attend or immediately follow the action. The first of these is familiar to every one, is sometimes visible to the eye, and can be readily felt by the hand, applied to the left side, particularly over the fifth and sixth ribs, where a slight but distinct stroke is felt against the walls of the chest. This beat or impulse is caused principally by the contraction of the spiral fibres of the ventricles, a movement which, at the same time that it shortens the heart, tilts up its point, and causes it to strike against the side. This contraction of the ventricles gives rise to a dull sound, which can be detected by the ear applied to the chest; and this first sound is almost immediately followed by another, somewhat sharper and quicker, which is due to the sudden closing of the semilunar valves of the arteries described in the last article. These sounds become modified and altered in disease of the heart, and afford important aid in detecting the existence and discriminating the nature of the morbid conditions of that organ.

From the heart the blood is poured into tubes called blood-vessels, which as they spread repeatedly divide into branches, till at their extreme ramifications they form a very fine net-work of minute tubes, so small that some of them will only permit one blood corpuscle to pass at a time, and so close together that the point of a needle cannot be inserted without puncturing one of these vessels and allowing the blood to escape. It requires a microscope to render these ultimate divisions of the blood-vessels and their contents visible to the eye. It is worthy of note that, whenever an artery or vein divides into two branches, each of these branches is smaller than the tube from which they bifurcated, but their joint capacity is greater. Hence it follows that the total capacity of the extreme and minutest vessels, called the capillaries, is considerably greater than that of the main trunks. As the result of this increased area, the motion of the blood in the last named vessels is slower than in the larger trunks; just as the current of a river becomes slower as its channel widens. This is, no doubt, a provision for the due performance of those vital functions in which the blood is the prime agent, and which take place during its slackened course through the capillaries.

There are certain very marked peculiarities in the vessels which first receive the blood from the heart, and which are called arteries. Like that of all the blood-vessels, their internal coat, or lining membrane, is very fine and smooth, so as to oppose the least possible friction to the passage of the blood through them; but they differ materially from the veins in having their principal coat composed of a very elastic tissue; so that when distended by the influx of blood, which increases momently both their diameter and length, they naturally recoil and recover their ordinary dimensions. Each gush of blood into the arteries thus distending and lengthening them by a motion propagated throughout their length in a sort of wave, tends to make them bulge out and straighten their curves. This action produces the *pulse*, of which we shall speak presently. But first let us notice an immediate and important effect of this distension and recoil; which is, that the shock of each fresh gush of blood is gradually overcome, and by the time the stream reaches the capillaries, the motion is no longer in jerks, but perfectly continuous and smooth, and passes in the same even current into the veins, which return the blood to the heart. That the flow of this important fluid should thus become not only slower, as we have seen, but quiet and smooth in those delicate and minute tubes where the vital functions are carried on, is no doubt the principal object of this simple, yet beautiful mechanism. There is a consequence rather than design of the elasticity of the arterial coat that should be noticed in this place; namely, that if one of these vessels be punctured or cut, the opening dilates and presents a gaping and somewhat circular aperture, with no disposition to collapse, as in the more flaccid walls of the veins. Hence a wound of an artery produces a much more dangerous escape of blood, and much more difficult to check, than a wound of a vein. Indeed, the only effectual means of arresting hæmorrhage in arteries of any considerable size is to tie the vessel.

Let us now return to consider briefly the *pulse*. This beat, which in certain situations is perceptible to the eye or the touch, is caused by the momentary distension and straightening of an artery in consequence of a fresh wave of blood, propelled into it from the heart. Hence the pulse affords a most important index of the heart's action, showing the frequency, strength, and other characteristics of its central pulsations. The pulse of the remote arteries is not exactly simultaneous with the beat of the heart, but follows very quickly after; that at the wrist in man being about the seventh of a second behind the contraction of the heart. The contractions of this organ, producing corresponding changes in the pulse, are increased in rapidity and force by a variety of circumstances, such as violent exercise, mental emotion or excitement, and by a condition of fever or inflammation. It is, therefore, useful for any one to know what should be the regular and healthy frequency of the pulse. Its rapidity is greater in young animals than in the old, and varies considerably in different animals. Taking the adult average, the healthy pulse is in man about 70 in a minute; in the horse from about 34 to 44; in the ass a little faster; in the ox from 35 to 42; in the sheep, 70 to 80; about the same in the goat; and in the dog from 90 to 100 in a minute. The situations where the pulse can most conveniently be felt vary somewhat in different animals. In man it is frequently visible on the temples of thin or aged persons, and can readily be felt at the wrist. In the horse it can be felt on the inner and under side of the lower jaw, just in front of a conspicuous tuberosity or prominence on its suface. In the ox the situation for examining it is nearly the same, but a little more forward. In sheep the carotid arteries of the neck, or the metacarpal arteries of the fore-leg, or those at the root of the tail, afford the most perceptible pulsations; and in the dog the pulse may be felt at the fore part of the root of the ear. In judging, then, whether inflammation or fever be present in any case, it is important to remember that the pulse is much quicker in young animals than in the adult; in colts, for instance, than in older horses. We must also bear in mind that it is temporarily quickened by fear or any nervous excitement. This is particularly the case in the horse, an animal of highly excitable, nervous temperament. It is necessary, therefore, in making our examination, to be very quiet and gentle in our proceedings; and it is well to repeat the investigation, at intervals, to ascertain whether the acceleration, when present, is persistent, or merely the result of temporary excitement.

We must now pass on to notice very briefly the remaining vessels concerned in the circulation, namely, the capillaries and the veins. The capillaries form the ultimate ramifications of the circulatory system. They are distributed in a fine net-work over every vascular part of the body. By the aid of a good microscope these minute vessels and the course of the blood through them can be beautifully seen in some transparent living structures. The web of a frog's foot, and the tail of the salamander, an animal common in pools of water at this season of the year, afford excellent illustrations. These vessels have very delicate walls or coats, which are easily ruptured, but have no pores or openings. Their membranous walls are, however, perfectly pervious to air or gases, as we shall notice in another place, when we come to consider the function of breathing.

From the capillaries the blood, propelled by the action of the heart, flows into the veins, the branches of which gradually unite into larger trunks till the great vein of the system is reached, which pours the blood into the heart. The only peculiarity of the veins that we shall here mention, is that of the valves, with which the larger vessels especially are numerously furnished, and which resemble in structure the semilunar valves of the main arteries, consisting, however, of only two pouches in one place, instead of three. Their office is to prevent the return of the blood in a backward direction when they are pressed upon by the contraction of the muscles along which they pass. It was the examination of the valvular apparatus of the heart, arteries, and veins, all tending to admit the passage of fluid in one direction only, that led Dr. William Harvey to the discovery of the circulation, and entirely exploded the old notion that the arteries, as their name would indicate, contained air. We now know that the admission of air into the blood-vessels is instantly fatal. This accident sometimes happens in wounds of the chest, or root of the neck, or those situations where the veins are bound to bony or other rigid structures by fascia. It is an accident of extremely rare occurrence, as the continuous stream of blood occupies the tubes to their full capacity. The effect of introducing air into blood-vessels is, however, sometimes used as a merciful means of instantaneously and painlessly putting an end to life. When a horse, for instance, has become superannuated, or hopelessly injured, and it becomes an act of necessity or mercy to kill the animal, this may be quickly done without inflicting pain by blowing air into a vein, say of the neck, through a quill.

To prevent or arrest a dangerous escape of blood from the vessels, nature has made many effective provisions, among which we can only mention the chief. Thus, the larger vessels, especially the arteries, are usually deeply seated, and lie in a course where they are well protected by adjacent parts; while the flow of blood from the smaller veins and capillaries, unless very extensive or under peculiar conditions of disease, is seldom dangerous. The natural mode of stopping hæmorrhage is this: the blood, when it has escaped from any vessel, and especially if it comes into contact with the air, tends very quickly to congeal and form a clot, which acts as a plug, and puts a stop to any further bleeding. As a practical lesson, we should learn from this not to be too officious in washing away the flowing blood from a wound and thus preventing the coagulation which would naturally take place. Lint or other similar materials, such as the pile of a hat, cobwebs, &c., entangle the blood and facilitate its coagulation. Pressure properly applied brings together the walls of the wounded vessel, or closes the opening. But in applying it, we should bear in mind the course of the circulation (*from* the heart in the arteries, *towards* the heart in the veins), and apply it behind the wound of a vein, that is, more distant from the heart, rather than in front of it, which in the case of a vein would only increase the escape of blood. When a surgeon opens a vein in the arm for the purpose of bleeding, he applies a ligature above the wound; when he wishes to stop this flow of blood he applies the ligature below it. When any considerable artery is wounded, no time should be lost in sending for a surgeon. A pulsating stream of bright red blood flowing in jets is a sure indication of a wounded artery. The first thing to be done in such a case is to press firmly with the finger or thumb over the artery, especially, if it can be done, against a bone, remembering in this case also the course of the circulation, and applying the pressure accordingly. In the case of a wounded artery in a limb, a temporary tourniquet can be applied by a handkerchief surrounding the limb, twisted into a knot over the wound, or between it and the heart; or some hard substance, such as a piece of cork, or even a stone, may be placed in this situation under the bandage, which should be tightened and firmly held by a piece of stick, twisting the ligature thereby as much as may be necessary. A little coolness and presence of mind in these emergencies may often save life.

Experiment in Feeding Leicester and Merino Sheep

A RECENT number of the *Country Gentleman* gives an interesting account of an experiment made by Mr. Jurian Winne, in the neighborhood of Albany, N.Y., to ascertain for his own satisfaction whether the claim on behalf of the Merinos that if they weigh less than English sheep they also consume less food, and are equally profitable to fat for the market, is well-founded or a mistake. The whole number of sheep fattened by this gentleman the past winter was 901, of which 180 were Merinos. The aggregate amount realized for the whole has been $12,049.15 *net*, that is, above all freight and expenses in New York—an average of $13.37 per head, which, on so large a number, is extraordinarily good. By way of experiment, two lots were set apart, consisting respectively of 60 Canada Leicesters and 61 Merinos; they were weighed Feb. 10th; a careful account was kept of all the food they consumed during the continuance of the experiment, 46 days, to March 28, when they were again weighed and sent to market. These numbers were thought to represent fairly the whole, and were taken as avoiding the trouble and additional risk of error, which would have been incurred by large numbers. The experiment began after both lots had been got in good progress—the previous and subsequent treatment of both having been precisely alike. The Merinos were an extra good lot, the 180 having been selected out of 600—and no complaint could exist against them, as we know by personal examination, on the ground of being below the best merits of their kind.

The following are the figures as regards weight, &c.:

Feb. 10—60 Coarse Wools weighed	6,870 lbs.
March 28— do do	9,878 lbs.
Gain in 46 days	1,008 lbs.
Total cost of feed (hay, grain, oil-meal, roots, &c.) for the 46 days,	$174.43
Feb. 10.—61 Fine Wools weighed	6,909 lbs.
March 28— do do	7,389 lbs.
Gain in 46 days	480 lbs.
Total cost of feed as above	$144.78

When both lots were sold, March 31st, the former realized 10¾ cents per lb., and the latter 10½ cents. A calculation in simple proportion will show that if the coarse wools gained 1008 lbs. at a cost of $174.43 for feed, the gain of the fine wools at the same ratio upon an exposure of $144.78 should have been 836 lbs., whereas it was only 480 lbs., or a little more than one-half a proportionate amount as compared with cost. As compared with live weight, Feb. 10th, the coarse wools gained 11½ per cent. in the forty-six days—the fine wools not quite 7 per cent.

How to Fit Collars to Horses' Shoulders.

It is very important to have a collar fit nicely and snugly to the shoulders of the horse. It enables him to work with a great deal more ease and to apply a great deal more strength. It prevents galling and wounding, as the friction is avoided. Collars are so made, or should be so made, as to throw the chief force on the lower part of the shoulder. The horse can apply but little strength on the upper part, and for this reason breast collars are coming greatly into vogue—as the strength is exerted on the lower part of the shoulder. But we started out to tell our readers how to make a new collar fit the shoulder of the horse. The collar should be purchased of the proper size; just before putting it on, the first time, immerse it in water, letting it remain about a minute, and immediately put it on the horse, being careful to have the hames so adjusted at top and bottom as to fit the shoulder, and then put the horse to work. The collar, by being wet, will adapt itself to the shoulder, and should dry on the horse. When taken off it should be left in the same shape it occupied on the horse, and ever after you will have a snug fitting collar and no wounds.—*Valley Farmer.*

THE BEST KIND OF HOGS.—A correspondent of the *Prairie Farmer*, after experimenting ten years with nearly every breed, has come to the decided opinion that "the Suffolk will furnish the most pork for the least money, and with the least trouble, over any other kind of hogs." He considers them "the easiest kept, and perfectly harmless; they make the least offal, and are ready at any time for the butcher."

Cattle Soiling in the United States.

A good authority states it as his experience, that "one and a half square rods" will yield an ample supply of green food for each head of cattle for one day. To adjust the cropping for this, "the length of time it will take the article sown to come to maturity, so as to be fit to be cut, and the length of time it will afterwards continue succulent, are to be considered." The following notes by the authority above quoted, will give a few hints as to the system:—

1. As early in April as the state of the land will permit, which is usually between the 5th and the 11th, on properly prepared land, oats, at the rate of four bushels to the acre.

2. About the 20th of the same month, sow either oats or barley at the same rate per acre, in like quantity and proportions.

3. Early in May, sow in like manner, either of the above grains.

4. Between the 10th and 15th of May, sow Indian corn, the flat southern being the best, in drills, three bushels to the acre, in like quantity and proportions.

5. About the 25th of May, sow corn in like quantity and proportions.

6. About the 6th of June, repeat the sowing of corn.

7. After the last mentioned sowing, barley should be sown in the above-mentioned quantity and proportions in succession; on the 15th and 25th of June, on the 1st of, or early in, July, barley being the best qualified to resist the early frosts.

The results of the above sowing, in succulent food, may be expected to be as follows, seasons of extraordinary drought excepted:—

The oats sown early in April will be ready to cut for "soiling" between the 1st and 5th of July, and will usually remain succulent until the 12th or 15th of this month.

Those sown about the 20th of April will be ready to cut between the 15th and 20th of July, and will last nearly or quite till the 1st of August.

Those sown early in May will be ready to succeed the preceding, and last till about the 10th of this month.

The corn sown on the 10th and 25th of May and early in June, will supply in succession succulent food of the best quality until early in September.

The barley sown in July will continue a sufficient supply until early in November, at which time, and often before, the tops of roots, carrots, beets, or turnips are a never-failing resource.—*Ex.*

Stable Floors of Gravel, Stone, and Coal Tar.

AMONG the materials of late recommended for stable floors, are a mixture of coal tar with gravel and stone. The manner in which the work is done is to take small stones and put them in a pile, pouring over the same the gas tar, and then mixing with a shovel until the stones are coated. These stones are now laid upon the floor and raked off level, and a sufficient quantity used to make the floor about three inches deep. Upon this floor coarse gravel, mixed in the same way with tar, is placed. The mixture is effected by putting the gravel in piles and making a hole in the top, pouring in the tar and mixing with a shovel. It is then spread over the stones two inches thick.

No more tar should be used than just sufficient to coat the stones and gravel, as it will be longer in drying. The stones and gravel being laid as above, a heavy roller weighing 400 or 500 pounds is passed over the floor until it is perfectly compact, and any places not touched by the roller are beaten down with a heavy maul. While the rolling and mauling is going on, the surface should be strewn over with fine gravel or sand, to take up the surplus tar, and should be continued until the surface is dry enough to walk upon and not stick to one's shoes. The floor is rat-proof and water-proof, and becomes hard and durable, making, it is said, the best floor that can be put in stables: the only objection being the smell of the tar, which, however, is healthy, and in time passes off. We find the substance of the above in the Vermont *Record*, without any names being given of persons who had tried it. We should presume that a good substantial floor could be laid in this way, and it has the merit of being cheap, and what every farmer and his workmen can readily do, without employing more expensive labour. It looks practical, and is well worth trying.—*Utica Weekly Herald.*

Veterinary Department.

Teeth and Teething in Horses.

To the Editor of THE CANADA FARMER:

SIR,—As the following is a matter of some interest to all who are in the habit of raising horses, and, indeed, to all who are in the habit of keeping horses under five years of age, I have been anxious for some time past to have an answer from the CANADA FARMER to a few queries on the subject.

1st. Should the milk-teeth of a colt rising three, four, or five years old, be taken out as soon as they are loose?

2nd. Are Wolf Teeth injurious to the sight, or will they cause the appearance of heaviness in the eyes?

3rd. Do colts begin to shed their back teeth at the same time they commence shedding their front ones?

4th. Can anything be done for Lampas that would be equal to or better than letting alone? During the last ten years I have owned upwards of a dozen colts which were losing and getting teeth while in my possession, and like my children (when undergoing the latter process especially), their gums have been swollen and sore; but I have never been able to believe that burning the roof of the mouth with a red hot iron and then scratching it with a horse nail would better matters much, either with colts or children.

I have only got what were called Wolf Teeth knocked off the upper jaw of one colt, which at the time was twenty-two months old; and being advised to do so by a person who ought to understand such matters, it did not occur to me then, but it has often occurred to me since, that if colts begin to shed their back teeth at the same time they begin to shed their front ones, it could not have been Wolf Teeth at all that I got knocked off.

An answer to the foregoing queries will be thankfully received by the writer, and ought to be read with interest by many more. J. L.

ANSWERS.—In answer to query No. 1, we consider it advisable to remove the temporary teeth when they become loose and are likely to interfere with the growth of the permanent ones.

No. 2. It is a common opinion held by many people that wolf teeth are injurious to the eyesight; we believe such to be a mistaken opinion altogether.

No. 3. Colts shed the molar teeth from the third to fourth year; the first, second and third in the jaw are temporary, and the first and second are usually displaced by permanent ones about the third year, whilst the third permanent appears about the fourth year. The colt has only twelve temporary molars or back teeth, whilst he has twenty-four permanent, and the first permanent appears when the colt is about one year old, and is the fourth in the jaw. The second appears when the animal is from eighteen to twenty-one months old, and is the fifth. The sixth makes its appearance about the same time that the third temporary one is being shed; so at four years old the colt has a full mouth of back teeth.

No. 4. Occasionally the gum behind the incisor or front teeth are swollen and tender whilst dentition is taking place, and this is known as Lampas. When very much swollen and tender, two or three scarifications with a knife will frequently relieve the inflamed part, but on no account should the hot iron be applied.

What is known as a Wolf Tooth is a small supernumerary tooth in front of the first back tooth. Such a tooth sometimes sets up considerable irritation and interferes with the process of mastication. A wolf tooth is very easily removed.

Do not accustom your horses to the blanket unless you cover them under all circumstances after being driven in cold weather. The blanket is of great benefit if properly used.

Contagious Diseases.

DURING the progress of certain disorders, there are given off from the sick body specific organic particles which possess a wonderful power of self-multiplication, and which, if they come into contact with living animals, are apt to develop the same disease from which they originated. Disorders thus propagated are recognised as catching, contagious, or infectious. They include, amongst horses, glanders, strangles, influenza, and typhoid fever; amongst cattle, pleuro-pneumonia, mouth-and-foot disease, rinderpest, and vaccine pox; amongst dogs, distemper, typhoid fever, and rabies. Although intangible and not usually cognisable by the senses, the specific virus, or *contagium*, as it has been recently termed, possesses a distinct and positive existence. Judging from its behaviour it appears to consist of solid particles, or germs, or cells. That it is not gaseous is evident from the fact that most contagions retain their activity even after passing through the air, or being carried about on the clothes of men, or on other such articles. That it does not consist in a volatile fluid is tolerably apparent from the fact that admixture with water does not always destroy its reproductive power. From the careful philosophical investigations of M. Pasteur it appears now to be tolerably well ascertained that the matter of contagion, whether it came from the ulcerated nostrils of a glandered horse, from the teeth of a mad dog, from the body of a plague-stricken cow, or from any other source, consists of minute spores, germs or cells, which, under favourable circumstances, may preserve their vitality for some considerable time outside the body, may attach themselves to living objects, and may be carried uninjured through the air.

The unsuspected movement of such living organisms throughout the atmosphere is not so difficult to understand when we remember that the small seeds of mushrooms, mosses, and other such plants, are often conveyed in this way for considerable distances. M. Plasteur has, moreover, recently shown that the atmosphere, especially in inhabited localities, is always filled with invisible organisms, which, when they fasten on suitable substances, develop and multiply. In this way mould and other lower forms of vegetation spring up; various putrefactive changes are originated; whilst, what is still more to our present purpose, pus is produced in worms from pus germs settling upon them!

When the contagious virus gains access to the living body, a period of quiescence or incubation occurs, which varies in duration with each virus, and even with the same virus under different circumstances. Mouth-and-foot disease, for example, will sometimes show itself two days after the exposure to the contagion; whilst hydrophobia has appeared in animals several months after they have been bitten by a mad dog. But the living germs are not idle during this period of incubation; they grow and multiply. Like other growing organisms, the germs of any contagion require nourishment, which is doubtless extracted from the blood, or living parts with which the vital cells are in contact. Like other organisms, they probably also contaminate by excretions the body on which they feed. This ingenious view is lucidly set forth by Mr. Crookes, F.R.S., in his excellent Report on Disinfectants presented to Her Majesty's Cattle Plague Commissioners. "In the case of the best known ferment—yeast—its cells multiply by feeding upon the sugar in the liquid; alcohol and carbonic acid being their excretions. It is therefore probable that during the multiplication of the virus cells, they in a similar manner impoverish and weaken the blood, by feeding upon some element in it, whilst at the same time they excrete a poison to which the symptoms of the disease may be immediately due." Third Report, p. 187. In this twofold manner—by exhausting the constituents of the blood, and polluting it by excreta—we may rationally explain the occurrence of the febrile symptoms, weakness, and generally disturbed and deteriorated state of system which usually show themselves even before any distinctive symptoms of the particular disorder are noticeable.

So soon as the special symptoms of any contagious disorders are developed, the rapidly-produced germs of the virus are ready again to be given off, and to commence in other healthy bodies their career of destruction. Sometimes they are emitted from several different channels, as in the case of the cattle plague, which has been shown to be propagated by the mucus from the nostrils or mouth, by the discharges from the bowels, and even by the breath and the tears. Sometimes they appear to be confined more especially to one secretion, as in glanders to the discharge from the ulcers in the nostrils; in cow-pox from the vaccine pustules; in hydrophobia from the mucus about the mouth. In Influenza, catarrhal disorders, and probably also in pleuro-pneumonia, the specific morbid matters appear to be given off chiefly in the breath. In typhoid fevers and other such cases, where the digestive organs are mostly implicated, the dejections from the bowels probably contain the active germs in largest amount.

As the more familiar organic poisons, such as strychnia, prussic acid, hemlock, or ergot of rye, differ in their rapidity of effect, their potency, and their *modus operandi*, so likewise do these organized viri or contagions. Thus cattle plague poison, possibly from its greater diffusibility or tenacity of life, is more virulent than the virus of the mouth-and-foot disease, or of influenza; a very small dose suffices to disturb health, it travels uninjured long distances, it grows and multiplies even in the bodies of the healthiest cattle. Some of the contagious viri are so potent and destructive that no victim survives an attack—such are glanders and hydrophobia; others produce a mild and transient disturbance of health, such as vaccine pox, mouth-and-foot disease, and many cases of strangles: many confer an immunity from subsequent attacks, probably by removing from the blood those substances in which the germs grow and multiply. Some of the contagious viri only exert their reproductive powers when they are placed under the skin, or mucous membranes, or get access to the blood itself. The more diffusible and dangerous viri will travel, however, through the air, adhere to *fomites*, and gain access to the body of their victims through the respiratory membrane, or even through the digestive apparatus.—*North British Agriculturist.*

"HOOKS."—John Howie, of Forrester's Falls, in the County of Renfrew, makes the following inquiry: "I wish information from you about a disease, or supposed disease, called the Hooks, consisting of a piece of white gristle that grows upon the lower part of the horse's eye, which some people in our neighborhood contend should be cut off, or it will blind them in course of time. I have a two year colt that is affected as above. I took it to an Englishman who is allowed to be the best horse doctor around here; he says it does not need to be cut, and there is no such disease, and it will go away of itself. By inserting information on this matter in the CANADA FARMER, you will oblige the writer and many others in this neighborhood.

ANS.—"Hooks" are an imaginary affection. The *membrana nictitans*, or haw, an appendage of the eye that has the power to a great extent of protecting the eye-ball from injury, and also tends to remove any foreign substance that may become lodged in the eye, is often mistaken for an abnormal growth, and is in consequence sometimes rudely removed. In some instances the haw becomes enlarged, when, if it causes irritation, the eye should be fomented with tepid water daily, and a mild astringent afterwards applied, as five grains of sulphate of zinc dissolved in one ounce of water.

Poultry Yard.

Standard of Excellence in Exhibition Poultry.

BANTAMS.

GAME BANTAMS.

GENERAL SHAPE AND COLOR.

The same as in the corresponding varieties of Game Fowls.

POINTS IN GAME BANTAMS.

Smallness of size	2
Color	3
Shape of head and neck	2
" body and wings	2
" tail	2
" thighs, legs, and toes	2
Condition	2
	15

DISQUALIFICATIONS.

Cocks above 24 oz. or hens above 20 oz.; adult cocks unabbed, color of legs not uniform in the pen, birds not matching in the pen.

PEKIN BANTAMS.

GENERAL SHAPE—COCK.

Comb—Double, square in front, fitting close and straight on the head, the top covered with small points, with a peak behind turning slightly upwards.
Head—Small, round in front, carried well back towards the tail.
Beak—Short, slightly curved.
Eye—Full.
Wattles—Broad, rounded on the lower edge.
Deaf-ear—Flat.
Neck—Neat and taper, quite free from hackle feathers
Breast—Round, full, and carried prominently forward.
Back—Very short, perfectly free from saddle feathers
Wings—Ample, the points carried very low, almost touching the ground.
Tail—Square, similar to the hen, free from sickle or carved feathers, the feathers broadest towards the end.
Tail Coverts—Straight, round at the end and lying close to the sides of the tail.
Thighs—Very short.
Legs—Short, slender and very taper.
Plumage—Close, perfectly hen-feathered.
Carriage—Very upright and strutting.

GENERAL SHAPE—HEN.

Very similar to the cock. The comb and wattles much smaller, and the head neater.

GOLD-LACED SEBRIGHT BANTAMS.

COLOR.

Head, Face, and Wattles—Rich red,
Deaf-ear—White.
Plumage—Rich golden yellow, every feather laced with rich black, that is, having a narrow, even, well-defined rich black edge all round the feathers; the two colors distinct, and not shading into each other, the lacing of the same width on the sides as on the ends of the feathers.
Legs—Slaty blue.

SILVER-LACED SEBRIGHT BANTAMS.

COLOR.

Similar to the golden, substituting silvery white for the golden yellow ground color.

POINTS IN SEBRIGHTS.

Plumage most evenly and distinctly laced throughout	4
Purity of ground color in silver, and richness and clearness of ground color in golden	2
Comb	2
Tail	1
Smallness	2
Symmetry	2
Condition and general appearance	2
	15

DISQUALIFICATIONS.

Cocks weighing more than 20 oz., and hens more than 18 oz.
Cocks having either hackle, saddle, or sickle feathers.
Legs of any color except slate blue.

BLACK AND WHITE BANTAMS.

GENERAL SHAPE—COCK.

Comb—Double, square in front, close and straight on the head, the top covered with small points, with a peak behind, turning slightly upwards.
Head—Small, round, and carried well back towards the tail.
Beak—Short, slightly curved.
Eye—Prominent.
Deaf-ear—Flat and even on the surface.
Wattles—Broad and thin, rounded on the lower edge.
Neck—Very taper, curving well back, so as to bring the back of the head towards the tail, hackle full and long, flowing well over the shoulders.
Breast—Round and carried prominently forward.
Back—Very short, saddle feathers long.
Wings—Ample, the points drooping so as nearly to touch the ground, the secondaries slightly expanded
Tail—Full, expanded, well adorned with long curving sickle feathers, carried well up towards the back of the head
Thighs—Short.
Legs—Short, clean, and taper.
Carriage—Very upright, proud, and strutting

GENERAL SHAPE—HEN.

Comb—Same shape as that of cock, but very much smaller.
Head—Small, round and neat.
Beak—Small.
Eye—Full and quick.
Deaf-ear—Flat, and even on the surface.
Wattles—Small.
Neck—Short and taper, carried well back.
Breast—Round and prominent.
Back—Short.
Wings—Ample, points drooping.
Tail—Full, expanded, carried rather upright
Thighs—Short.
Legs—Short, clean and taper.
Carriage—Upright and strutting.

BLACK BANTAMS.

COLOR.

Comb, Face and Wattles—Rich bright red.
Beak—Dark horn color, or black.
Deaf-ear—Pure white.
Plumage—Rich black throughout.
Legs—Black, or very dark leaden blue.

WHITE BANTAMS.

COLOR.

Comb, Face and Wattles—Rich scarlet red.
Beak—White.
Deaf-ear—Pure white.
Plumage—Pure white, as free from yellow tinge as possible.
Legs—White, with a slight pink tinge on the back, and betwixt the scales.

POINTS IN BLACK OR WHITE BANTAMS.

Purity of white or richness of black	3
Smallness	3
Symmetry	2
Comb	2
Beak or face	2
Condition, and general appearance	2
	15

DISQUALIFICATIONS.

Cocks more than 20 ounces, or hens more than 18 ounces.
Legs of black bantams not black or dark leaden blue.
Legs of white bantams of any other color except white.

Do Poultry Pay?

THIS is a question concerning which much may be said on both sides. It is not often, however, that it is answered by the indisputable logic of facts and figures. Usually it is met by vague impressions. These sometimes array themselves on one side and sometimes on the other. We have met with people who were quite certain poultry are profitable, and others equally certain that they were a losing concern—neither of whom ever dreamt of keeping a balance-sheet. That enthusiastic agriculturist, Mr. J. J. Mechi, under date of Feb., 1868, gives the following interesting statement on this subject, which is very decisive in favour of poultry-keeping:—

"Having a conviction that poultry, like animals, consume according to their weight, I tested it by giving to a healthy, fine hen, weighing 6 lb., as much barley as she would eat. In seven days she consumed five half-pints. The very finest barley weighs 56 lb. per bushel; at that rate half a pint weighs 7 oz., so that the hen consumed 35 oz., or a trifle over 2 lb. in a week, having no other food. This is a third of her own weight weekly. A pig weighing 60 lb. (live weight), or ten times the weight of the fowl, would certainly consume quite 20 lb. of barley per week—or ten times as much as the hen; but see how great is the difference in value of the two for sale:—Pig, 4d. per lb. live weight; fowl, 9d. to 1s. per lb. live weight—wholesale price. But when the poultry are at large they consume many worms and insects, and therefore are produced at a smaller consumption of food than I have named. Altogether the advantage is so great, that the whole question of producing more poultry is a national and important one. If by a much larger supply the price were reduced one-half, they would still pay as well or better than sheep, bullocks, or pigs. Of course the same principle applies for poultry as for other farm animals. There must be good breeds, and no breeding in and in after the first cross. We import 500,000,000 of foreign eggs annually—to our disgrace be it said. It is a commonly received axiom that 56 lb. of barley will make 8 lb. of pork net dead weight, or 5 lb. will make 1 lb. live weight. Therefore 5 lb. of barley at 1d. per lb. (or average 40s per quarter) will make 1 lb. live weight of poultry, worth 9d. per lb."

Care of Young Turkeys.

THE first diet offered to turkey chicks should consist of eggs, boiled hard, and finely mixed, or curd with bread crumbs and the green part of onions, parsley, &c., chopped very small and mixed together so as to form a loose, crumby paste; oat meal with a little water may also be given. They will require water; but this should be put into a very shallow vessel, so as to insure against the danger of the chicks getting wet. Both the turkey hen and her chickens should be housed for a few days; they may then, if the weather be fine, be allowed a few hours' liberty during the day; but should a shower threaten, they must be put immediately under shelter. This system must be persevered in from three to four weeks. By this time they will have acquired considerable strength, and will know how to take care of themselves. As they got older, meal and grain may be given more freely. They now begin to search for insects, and to dust their growing plumage in the sand. At the age of about two months, or perhaps a little more, the males and females begin to develop their distinctive characteristics.

In the young males, the carunculated skin of the neck and throat, and the horn-like contractile comb on the forehead, assume a marked character. This is a critical period. The system requires a good supply of nutriment, and good housing at night is essential. Some recommend that a few grains of cayenne pepper, or a little bruised hemp seed be mixed with their food. The time of danger is over, and they become independent, and every day stronger and more hardy. They now fare as the rest of the flock, on good and sufficient food.

With respect to the diseases of the turkey, with them as with all other poultry, prevention is better than cure. The most important rules are: let the chicks never get wet, and encourage them to eat heartily by giving a good variety of food: yet to beware of injuring the appetite by too much pampering. Taking a pride in them is the great secret of success in the rearing of domestic poultry,—*Ex.*

Correspondence

County and Township Grants.

To the Editor of THE CANADA FARMER:

SIR,—In a recent number of your journal you gave some explanations of the New Agricultural Bill, in answer to the queries of a Secretary; perhaps you would be kind enough to explain a difficulty in the Act that occurs to a Treasurer. In section 48, subsection 1st, it is provided (among other things) that no Township or Horticultural Society shall receive more than *one-fifth* of the entire grant to any Electoral Division Society. Now the case is this: Township A deposits $260, B $168, and C $66, and to divide the grant ($700) in proportion to the amount deposited, A ought to receive $221.05; B $142.84, and C $56.11; but as one-fifth of the grant is $140, no more than that sum can be paid to any Township Society.

Now, the question is, how are such balances to be disposed of? In the above case $83.88 would be left in hand, for which, as far as I see, there is no provision for dividing it according to Statute. Is it to be paid to the other Township Society till its share comes up to $140, or is the Electoral Division Society to retain and use it, or will it be a "casual advantage" for the benefit of the

TREASURER?

NOTE BY ED. C. F.—The distribution of the three-fifths of any Electoral Division Society's grant to the townships in such division, is to be, to each, in proportion to the amount subscribed by its members, as compared with the amounts subscribed by the other townships in the Division, and as shown by affidavits of their respective Treasurers.

The provision objected to by "Treasurer" will not, in the case he cites, injuriously affect townships B and C; for, with the one-fifth limitation B will receive within $2.84, and C the full amount, of what they would have received if townships A and B had not been subject to such limitation, but had received the whole amount that, in the absence of the one-fifth limitation, each would have been entitled to, viz.: $221.05 and $142.84.

The Electoral Division Society, however, owing to the limitation to which townships A and B are subject, will reap the "casual advantage" of the unappropriated sums of $83.88 and $2.84, which townships A and B would have otherwise received. We do not suppose that in framing the provisions this result was contemplated, the intention of the limitation being to prevent one or two Township Societies obtaining a larger share of the grant than the County Society. When there are more than three Township Societies in any Electoral Division, the probability is that the whole of the three-fifths share of the grant will be appropriated by them.

Grass in Orchards.

To the Editor of THE CANADA FARMER:

SIR,—It is only by discussion that truth can be arrived at; and there is a communication in a late number of the CANADA FARMER which seems to call for some remarks, as it is quite at variance with the doctrines held by the majority of Canadian Orchardists. I refer to the article headed "Orchard Culture." Now, sir, it is almost an axiom among us that grass is bad for fruit trees, and that the more an orchard is cultivated the better the returns will be. This opinion has been arrived at by years of patient experiment, and by a careful noting of the experience of our American brethren, than whom there are no better orchardists in the world.

In a note to the writer lately, the leading fruit culturist perhaps in the Dominion said: "If you plant plums you must cultivate your orchard." Surely, what is good for plums cannot be bad for apples, and when we hear advice from such a quarter we cannot but think it safe to follow it. A conversation with an old and experienced horticulturist sustained this opinion, he taking strong ground against grass in orchards, while an actual experiment of a large orchard producing nothing while in grass, and giving liberal returns when broken up (which experiment I saw made), would go far to convince the most sceptical. But, although I state some of the arguments against the plan proposed, I should be far from wishing to dogmatize. I should like to have the subject thoroughly discussed, and the facts and arguments on both sides fully set forth. If we can seed down our orchards as soon as we plant them, and while getting a crop of hay each year, have our trees grow and produce better than by cultivation, by all means let us know it; or, if we can, by letting all the grass rot or be consumed on the orchard, produce equal returns, he will be a public benefactor who will establish the fact.

May 18, 1868. HURON.

P. S.—Is there any good pea-cutting machine? How has Collard's done the past season? If any of those who have used it would communicate the results of its use through the CANADA FARMER they would oblige.

Thorn Tree for Hedges

To the Editor of THE CANADA FARMER:

SIR,—I have seen so many charges preferred against my old friend the hawthorn, that I feel inclined to say a word or two in its behalf. But first let me say that when I left England to come here I was forty-six years of age, and twenty-five of those forty-six years I spent very much among the hedges. I have planted, plashed and trimmed hedges as much, perhaps, as any man in Canada, so that if I do not know a little about the business I must be a slow farmer indeed. The last three charges that I have seen against the thorn are by your correspondent, "R. W. S.," Woodstock. They are the following: First, the mice eat them; second, they are infected with wood-lice; and, thirdly, they do not grow thick at the bottom. Now, nearly one of the first things I wanted when I came to the farm on which I am now living was a thorn hedge. Having seen many young sprigs of Quick or Hawthorn in the bush, and having observed that they had plenty of prickles on them, and also that they were natives of this country, I could see no reason why they should not make a good hedge. So I gathered as much out of the bush as planted a hedge on each side of my garden. This is seven or eight years since. Now for the objections of "R. W. S." The mice during that time, I think, have eaten about six, that is all; but I rather think not even so many as that, and the few that were eaten shot out a number of young branches below the part where they were eaten; so that objection is not a very serious one. Perhaps about the same number have been infected with lice, but they were so little injured by them that I do not know now which they were. The last objection would be a great one if it were true; but as far as my hedge is concerned there is no force in it at all. For the benefit of your readers I will explain my plan of making hedges grow thick at the bottom. When you plant the hedge, set three roots in a foot, not further apart than that; cover the roots with good soil; let it grow two years or summers. The third spring cut it off, say the last week in April, to about an inch from the ground. Cut it off with a sharp knife, with an upward cut. Be careful in so doing not to loosen the root. In the Fall, after this, trim it down a little, not too much; take all the longer branches off, whether they be grown upwards or sideways; make it look snug and straight. But be sure you mind one thing; begin from this first trimming to form it into the shape of the letter A, sharp at top like a wedge; keep it in that form till you get it to the height you want it. One thing more; keep it clean of weeds, and you will have a hedge thick enough at the bottom. If any one doubts the truth of what I say, they can have an ocular demonstration if they will visit my farm.

STEPHEN NICHOLSON
Sylvan.

Mowers and Reapers.

To the Editor of THE CANADA FARMER:

SIR,—As the period is fast approaching when manual labour will be called into full requisition by the husbandman in securing the abundant growing crop, and it is to be feared that in some localities it will be inadequate to the task, it is important to utilize machinery as far as practicable. All admit, that were it not for the ingenuity and enterprise that has been employed in adapting machinery to the most laborious part of field labour, the agriculture of Canada would have been far below its present condition. Twenty years ago, in our palmiest days of wheat-growing, many farmers (the writer among the rest) would have grown it more extensively but for the difficulties of harvesting it. The "Canadian Reaper" has removed those difficulties, and makes what was before the severest labour almost a pleasure. There is still an effort being made to improve on these old and well-tried machines, by the addition of a self-raking apparatus. I would suggest to my brother farmers to see them tested before purchasing. The loss of valuable time in the middle of harvest with imperfect machinery is a serious drawback. With regard to Mowing Machines, they are no less useful, though not as yet come into such general use. Various unsuccessful attempts were made in the construction of this machine, and even after the cutting principle was brought to a tolerably good state, their prodigious weight and side draught made them a horse-killing implement to work, and prejudiced the mind against them. Perseverance has overcome the difficulty, and some of the Mowing Machines now manufactured might, I think, be termed almost perfect; and among that class you may number the "Cayuga Chief Junior," manufactured by Patterson & Bro., of Richmond Hill. This machine, for its adaptability to cutting all kinds of grass on the most rough and uneven surfaces, for strength, lightness of draught, and absence of side draught, surpasses all others that I have ever used or seen used, and I have been a close observer and anxious enquirer after truth in these matters. The old-fashioned "Canadian Reaper," and the "Cayuga Chief Junior Mower," furnish the farmer with two first-class machines, on which he may safely depend. Such is my opinion, based upon experience, and if of any advantage to my fellow agriculturists, I cheerfully tender it.

JNO. P. BULL.

York Township, June 5th, 1868.

WEEVIL.—A Communication from "A. J. B.," with a specimen of clay and insects, has been received, but too late for insertion in the present issue. It will appear in the next number, with remarks on the specimens, after we have examined them under the microscope.

AN OLD MAN'S HINTS.—A correspondent from Athol, who informs us that, though he has lived more than three-score years and ten, he now ventures to write with a view to publication for the first time, sends us the following hints:

THE THISTLE PLAGUE.—I have fought them for nearly fifty years, and am fully persuaded that all thistles cut when in full blossom, or rather just past bloom, are killed, and ploughing for the purpose of destroying them should be done at the same time. No seed, no thistle: three years without seed, and they would be exterminated.

THE USE OR ABUSE OF SALT.—I have seen a piece going the rounds headed, "Brine a Poison," and a French author quoted to prove it. Many of my neighbours also endorse the statement, saying that old brine should never be used. Now, my experience is that salt or brine may be used with safety under the exercise of proper judgment; but that it will kill anything that lives, whether man or beast, tree, shrub or plant, if improperly used. My father killed the first cow that I can remember with pickles saved in salt. A neighbour took a pail of brine, and gave his cattle a little sup; a large steer, being too greedy, got too much and died. Two others gave it to their sheep, and two to their pigs, with the same result, and so on to the end of the chapter. It is only the immoderate and injudicious use of brine or pickling salt that need be avoided. I use my old brine or pickle thus: Any spare brine in winter, I put on coarse fodder in summer; on nettles, thistles, elder-bushes, or anything I want to kill, and let the sheep grub them off. My best brine I boil, skim, and cool, then put on new pork, with the best results.

BLACK KNOT IN THE PLUM TREE.—A correspondent from Richmond Hill writes: "I am told that leached ashes are a certain cure for black knot. Mr. Welsh, of Thornhill, first observed that all his plum trees were affected with black knot, except one, around which some leached ashes had accidentally been thrown. Taking a hint from this, he placed leached ashes around the roots of all the trees, which are now smooth and healthy. As this is a time when thrifty housewives will be making soap, or will have just made it, I thought this a timely item for your invaluable paper."

WELLS.—A correspondent from Colborne enquires if we know any more economical way of obtaining water from below the ground than the old-fashioned way of digging and walling. "I have heard," he says, "of iron tubes being driven in the ground till water is obtained, but have never seen them in use." Can any of our readers give information to the point? We have seen accounts of the plan referred to in American papers, and have known the method adopted in the soft and uniform soil of the Western prairies, but have never heard of its introduction into Canada.

The Canada Farmer.

TORONTO, CANADA, JUNE 15, 1868.

The Provincial Exhibition.

THE prize list for the approaching exhibition at Hamilton, in the week commencing Monday, the 21st of September, has been prepared for circulation, and is now ready to be issued. The arrangements, as far as the Board of Agriculture are concerned, are well advanced, but a good deal yet remains in the hands of the local committee of what will properly fall to their share. There is plenty of time still remaining to arrange matters, and doubtless the City of Hamilton will do itself honour by making the most thorough preparations for the interesting occasion which is in prospect. The prize list, as amended this year, differs in few material points from that of 1867. The rules and regulations have been altered, and the programme changed, to adapt the latter to the year and the former to the new agricultural statute. An important variation, necessitated by the change in the law, is that entailed by the recognition of the Mechanics' Institutes and Fruit Growers' Associations, each of which will now hold its annual meeting during the exhibition week. The Fruit Growers' meeting has been arranged for Tuesday evening, the Mechanics' Institute meeting for Wednesday evening, and the annual meeting of the Association for Thursday evening of the week.

No changes have been made in the prize list for horses, but in cattle the prizes for all descriptions have advanced in the following ratio:—Cows from $20 the first prize, $12 second, and $8 third, to $24 first, $16 second, and $12 third; three year olds from $16, $10 and $6, to $20, $14 and $10; two year olds from $12, $3 and $5, to $16, $12 and $8; yearlings from $10, $6 and $4, to $12, $8 and $6; heifer calves from $6, $4, and $2 to $10, $6 and $4. These respectable additions will, if begetting no more competition, prove a healthy stimulus to an important branch of agriculture.

The Prince of Wales prize is given this year to the best herd of cattle, consisting of one bull and five female animals, all thorough-bred. The Ferguson Cup, formerly presented by the late Hon. A. J. Ferguson Blair, has been discontinued.

In sheep classes an increase of $55 in all has been made, $9 being added to the prizes for shearling ewes and ewe lambs, and $2 to the ram lamb classes.

In the Horticultural Department some details are changed, but altogether the amounts remain much as they were last year.

Some additions are made in the implement class, among them a land presser, horse pitch-fork, ditching machine, machine for sowing grass seed and for pulping roots, for all of which prizes are offered.

The Canada Company's prize for wheat is continued, the Association offering $40 as a second, and $20 as a third prize.

In the Arts and Manufactures department no changes of any note are made, and in the majority of instances the arrangement is continued.

The arrangement in the Fine Arts, though made last year, is not yet sufficiently known to make it unworthy of reference. For some time previous the classification of amateurs and professionals together was a matter of constant complaint. Amateurs alleged that they had no chance beside professional artists, and that if any encouragement was to be given the art of painting, and any inducement offered worth competing for, a distinction should be made. In accordance with these wishes, the Board of Arts last year separated the competitors into two classes, at the same time making sections in each for professional list, oil originals; amateur list, originals and copies; professional or amateur figure subjects; and the same in water colours. The separation proved acceptable last year, and will, we hope to see, make large additions to the exhibition under the same arrangements this year.

Judges in some of the classes of animals have been selected from the United States; the remainder will be named by the Committee of Societies.

Railway Gardens.

THE Grand Trunk Railway Station Master at Guelph, G. A. Oxnard, Esq., has set an example the present spring which we should like to see imitated all along that and the other lines of railway in the Dominion of Canada, having laid out and tastefully planted, at his own expense, a beautiful little garden adjacent to the Passenger Depôt. It is astonishing what a change this has made in the whole contour and influence of the place. Whereas before the scene had only an air of business and was purely utilitarian in all its belongings and surroundings, there is now an air of refinement and an appearance of beauty and elegance, whose influence is felt by all observers. The stone station-house and brown sheds have assumed a look of enhanced respectability, being affected by the garden very much as a man is, who already dressed in a good, substantial suit, gives himself the finishing touch by putting on a good hat and a nicely fitting pair of boots. Passengers who are waiting for belated trains beguile the weary moments by admiring the shrubs and flowers, and travellers beginning or pursuing a journey, get a glimpse of rural loveliness which reminds them of home. The town artisan beholds with pleasure the little enclosure, and thinks how easy it would be to get up such a scene of beauty in front of his own cottage door. Giles from the country, where grass and trees are abundant, reflects how readily he could make a pleasure garden on a far larger scale, and beat the little railway parterre hollow by a spacious lawn, an extensive shrubbery and spreading flower-beds on his own farm. Wives and daughters besiege husbands and fathers for leave and help to do something equally pretty where they live. The little railway

garden is thus not only a source of pleasure, but an educator. Railroads have educated us into promptitude, punctuality, and push; they have exerted mighty moulding influences on business; it is possible for them to give that dull scholar, the public, some lessons in æsthetics, and be an educator in the direction of rural improvement and home adornment. The question, will it pay? by which all railroad affairs are mainly settled, may, we think, be proved to be entitled to receive an affirmative answer without resorting to any very far-fetched argument. If people catch the contagion of taste and refinement, they will build better houses, import articles of adornment freight shade, ornamental, and fruit trees, and travel more under the influence of a desire to see the far-off loveliness of nature and art.

If these improvements are made, it must be, we understand, at the cost of the station-masters. Being subject at all times to promotion and removal, the encouragement to engage in this sort of thing is not great. Might not Railway Companies apply a stimulus in some way, either by affording inducements and facilities in this direction, or by giving a prize annually for the best laid-out and neatest-kept garden along their lines? At water stations it would be easy for companies to apply what would be the most striking feature in a railway garden, namely, a fountain. This could be fed from the tank and the flow carried back to the well or reservoir, so that there would only be the pumping to provide for—a comparatively small item.

Railway gardens are very common in England. Some of them are extremely pretty, and fix themselves in the recollection of the transient traveller. We have very distinct and pleasant memories of some we saw during a tour in England nearly seven years ago. Railway gardens are also becoming numerous in the United States. There are some very handsome ones in the vicinity of New York. On the line of the Erie Railroad, also on the Lake Shore Railroad between Cleveland, Ohio, and Erie, Pennsylvania, there are many tasteful depôts. An American exchange, referring to this subject, but more especially urging a better style of depôt building, remarks: "It is not to be supposed that all railroads can immediately rush into such landscape and architectural exercises; for it is a prime principle with them to make everything pay. But we submit whether pretty depôts, surrounded by nice lawns and gardens, do not go far toward making a road popular; and if popular, of course it pays."

There are very few railway gardens in Canada, but we hope the station-masters may have a run of horticultural fever, and then there will soon be more. Kingston and Brampton are the only places on the line of the Grand Trunk Railway where we remember to have noticed gardens. The Great Western Railway at Hamilton is beautifully ornamented in this way, and some time ago there was a very pretty little garden at Harrisburg, but the station-master during whose reign it flourished seems to have had a Gothic successor, who officiates

> "Near yonder spot, where once the garden smiled,
> And still where many a garden flower grows wild."

We hope more attention will be given to this matter by railway people.

New York Agricultural Exhibition.

It is now officially announced that the next exhibition of the New York State Agricultural Society will be held at Rochester, commencing on Sept. 19th, and open till Oct. 2nd, inclusive.

We commend the regulation referred to in the subjoined notice extracted from the *Journal of the N. Y. Ag. Soc.* A rule that shall render it imperative to close all entries some time previous to the opening of the exhibition is essential to the orderly arrangement of the specimens, and a timely adjudication of the prizes without hurry or confusion. The place appointed is eminently suitable and convenient of access, and the time will in no way clash with our own Provincial exhibition, which will be held during the week previous. The notice to which we allude is as follows:

"Attention is directed to the new regulation regarding entries. The entry books will be closed on Monday, September 14th (two weeks before the opening of the Fair), and no entries will be received after that day.

"This regulation is intended to insure the orderly arrangement of the exhibition, and to prevent the confusion and delay at the opening of the Fairs, which resulted from the reception of entries up to, and sometimes even after the time of opening. It is hoped that, under the new rule, the exhibition will be in order, and that the judges will be able to make their examinations and awards, in great part, on the first day, so that visitors on the second day may know what animals and articles have gained the premiums, and exhibitors may receive the benefit of their inwards—heretofore frequently not announced until near the close of the Fair.

"Entries may be made at any time until September 14th (the earlier the better), by letter addressed to the Secretary of the New York State Agricultural Society, Albany, N. Y., or personally at the Agricultural Rooms.

"The Premium List has been much enlarged, and the regulations (to which the attention of intending exhibitors is particularly directed), have been revised, and, in some other respects, amended.

"Copies of the Premium List and Regulations will be sent by mail on application to the Secretary as above, and may be had at the Rooms."

Report of the Secretary of the Michigan Board of Agriculture.

We have received a copy of his Report for the year 1867 from Mr. Sanford Howard, the Secretary of the Michigan Board of Agriculture. It is a thick octavo volume of nearly 500 pages, and is full of most valuable and interesting information, as a brief summary of its contents will at once indicate. The first fifty pages give an account of the State Agricultural College and its various operations during the past year. The condition and progress of this valuable institution are most satisfactory. Among the investigations conducted in connection with the College were a series of experiments on sheep-feeding, and also some trials with various fertilizers, the results of which, however, were defeated by an inroad of swine, showing the utter disregard of these unworthy republicans for authority or science. The Report next gives a statement of the characteristics of the past season in Michigan; the yield of crops, with a special record of certain new crops, viz., sorghum, hops and peppermint. The injurious insects that work such havoc in the farmers' fields, the Potato-Bug and Canker-Worm particularly, receive their share of notice. A very full report is given of the climate and general characteristics of that newly opened portion of the State, known as the Grand Traverse Country. The important subject of cheese factories, and the progress of the associated system of dairying in the State, are duly considered. Reports from Agricultural Societies occupy a large portion of the volume; and besides these various subjects of comparatively local interest, there are in the work some valuable papers that will be acceptable to agricultural readers everywhere. Among those may be mentioned the following: Agricultural Societies, their proper objects and right management; Irrigation; Cross-breeding of Sheep, by Wm. Spooner; Principles of Hay-making, by Dr. Voelcker; The Dew of Heaven—Influence of Forests, by Cuthbert W. Johnson; Food, by J. B. Lawes and J. H. Gilbert; and a most valuable dissertation on the Diseases of Cattle, by Professor Gamgee. The whole forms a noteworthy contribution to the agricultural literature of the day, and should be on the shelves of every well-furnished library in that department.

DEVON HERD BOOK.—Mr. H. M. Sessions, South Wilbraham, Mass., announces the early publication of the second volume of the American Devon Herd Book, containing over 600 pedigrees.

The Season.

We have still to chronicle favourable weather, and the promise of good crops. Much rain has fallen since our last issue, too much, indeed, for low-lying and undrained land, but none too much for land that is high or properly drained. Any excess either in the direction of wet or drought proves the importance of drainage. Drained land endures the want of rain much better than undrained, while it soon recovers from the effect of superabundant moisture. In some quarters we hear complaints of the wire-worm as very destructive in wheat fields, but with this exception the wheat report is most encouraging. Hay is now sure to be a good crop. Pasturage is abundant. Nature smiles with verdure, and is purpled with flowers. The land flows with milk and honey. Grain, grass, fruit, beef, mutton, and all farm products, bid fair to be abundant.

Wool.

The market is at present in a very dull state, and the prospect for dealers seems anything but encouraging. Stocks everywhere are large, and since the imposition of the heavy duties there is no outlet for our surplus supplies. The depressed condition of the manufacturing interests precludes the possibility of there being much demand at home, and therefore prices are expected to rule low. From 23cts to 25cts are the prices now paid by dealers for wool, and it is not expected that these rates will advance. Dealers will only pay the above prices for clean, good wool—indeed, it is now difficult to find a buyer at any price for dirty wool, or wool only partially cleaned. At any rate, much lower prices have to be accepted for any fleeces not properly cleaned.

Officers of Agricultural Societies for 1868

PAKENHAM BRANCH.—President, Andrew Dickson; Vice-President, Young Scott; Sec. & Treasurer, Alex. Fowler. Directors:—Samuel Dickson, Charles Dunlop, James Woods, William Dickson, Junr., John J. Browne, John A. Gemmill, Robert Elles, Thomas Bowes, James Elies.

PRESENTATION.—The members of the County Agricultural Society of South Ontario presented to their President, John Shier, Esq., on the 25th of May, a very handsome and valuable gold watch, as a mark of their respect and esteem.

TREATMENT OF EMIGRANTS.—We were very sorry to read in the *Globe* of June 10th a letter signed "Emigrant," complaining of the treatment which the writer and fellow-travellers had received on board ship and on their arrival in this country, treatment which the writer averred induced a number of his companions to change their destination from Canada to the United States. We hope and believe there must have been some misunderstanding in the case; for we cannot suppose that the chief authorities could be aware of the circumstances. Subordinates sometimes, in every department, give themselves fearful airs, and recklessly sacrifice their employers' interests to their own selfish whims or personal advantage. Such a statement as that to which we refer is calculated to damage the country in the estimation of neighbours, and of those especially who are contemplating a removal from the fatherland to this. Every possible kindness and assistance should be rendered to emigrants arriving here; railway officials, emigration agents, and all authorities concerned, should be especially careful to mitigate the unavoidable hardships and perplexities of the new comers, and to show them that they are welcome amongst us. We hope the letter referred to will receive some attention, and call forth a satisfactory exculpation of the chief authorities concerned.

Agricultural Intelligence.

Emigration from the East End.

The London *Times* of the 22nd ult., says: The committee of the East-end Emigration and Relief Fund are prosecuting their work of emigration to Canada as a means of relief for the distress at the east of London with some vigour. It will be recollected that on the 16th of April last they sent 163 emigrants to Canada in the St. Lawrence, the first steamer leaving the Thames for that port this season, and this was yesterday followed up by the despatch of another party of 167 souls, in the steamship Thames, to the same destination. These people have all been selected with great care from among the unemployed who have been thrown out of work in consequence of the slackness in the iron ship-building trade on the Thames, by a committee of gentlemen in Poplar, and in all cases attention has been paid to the selected candidates for emigration fulfilling the following requirements—that they shall have been long resident in the district; that their characters bore strict investigation; that they were not in the receipt of parochial relief; and that they had not refused work or been on strike. In all cases in which any doubt arose, personal application was made to the last employer of the candidate, and the characters of many among them have been certified by the recommendations of Messrs. Green, Samuda Brothers, Blyth, and other large employers of labour. Mr. Dixon, the Canadian Government agent, expressed his high approval of the appearance and bearing of the men, all of whom may be said to be in the prime of life, and stated his opinion that, provided they were steady, they could not fail to obtain employment in Canada, and do well there. It is particularly satisfactory that the younger members of these poor families (for all the emigrants are in families) have some prospect in life open for them. This seemed the great hope of the mothers. One poor woman was heard to say, "It's the boys I'm thinking of; I was afraid they would be disgracing me by idleness in Poplar." For the girls, too, there is much hope; all above 14 are sure to meet with immediate employment on arrival in the Dominion. The arrangements were satisfactory. After mustering the passengers and ship's company, and before reaching Gravesend, dinner was served to the emigrants, a fact they appeared to appreciate. The Canadian mail in the morning had brought letters from Mr. L. Stafford, the chief emigration agent at Quebec, announcing the arrival of the St. Lawrence on the 7th inst., and reporting the disposal of the emigrants, whom he describes as a "well-behaved and healthy-looking lot of people," and respecting whom he promises a full report when they are finally settled.

Preserving Meat.—The Gamgee Process.

Professor Gamgee, the distinguished Veterinary Surgeon, whose name has been so prominent before the British public and the world in connection with the ravages of the Rinderpest, and who is also the author of one of the best modern works on veterinary science, has recently visited the United States in order to introduce his newly invented method of preserving meat fresh, with a view of procuring from Texas and other parts of the continent an increased supply of fresh meats at moderate prices for the population of Great Britain. The *American Agriculturist* thus speaks in reference to the matter:—

"The process by which the meat is cured is patented in this country, and consists of causing the animal to inhale carbonic oxide gas until it loses consciousness, when it is killed and bled. The carcass is then quickly dressed, and while still warm, exposed a short time in a chamber to an atmosphere of the same gas, mingled with a little sulphurous acid gas. These gases, especially the former, combine with all the oxygen in the system, and take away all that enters the meat through the absorption of air. This very important discovery, which is the result of years of study, may be of incalculable advantage to the people of this country and of the old world. If Texas beef can be placed in our markets at five or even ten cents per pound, both the raiser there and the consumer of beef here will be greatly benefited. It seems almost as if the time might soon come when beeves, and sheep, and hogs, will no longer be packed in close cars, transported for days and nights in suffocating heat or piercing cold, driven through our crowded cities, feverish and excited, starved and famishing for drink, to be thus slaughtered; but killed within sight of their own pastures, and their flesh, preserved by this process, transported like any other merchandise, to be sold and used at any time within six or eight months. Experiments will soon be made of transporting "Gamgeed" beef and mutton from some of our Western States and from Texas, and our readers shall have reports of the success. These experiments or tests are taken in hand with great zeal by several gentlemen of large means and entire responsibility, so that we may hope for speedy and accurate results. It is but fair to add that this interesting discovery of the action of carbonic oxide on fresh meat was made in pursuing investigations having for an object the furnishing of healthy meat, at a cheap rate, to the population of Great Britain.

Goderich Salt Mills.

A correspondent of the London *Advertiser* says, within the past two weeks two salt wells have been completed. A stratum of fine salt, 15 or 20 feet thick, has been pierced at the depth of 1,000 feet. The first of these, called the Huron Well, was commenced on New Year's day, and finished in four months and about six days. The contractor, Mr. Morrison, having pushed on the work with vigour, was enabled to perform the work in one-half the time taken by him last year at the Ontario Well. The second, which is called the Victoria Well, owned by Captain Dancy, Messrs. Butler, Sheppard and Strachan—all citizens of Goderich—was completed in exactly four months. Taking into consideration that they have superintended the work themselves, at the same time being inexperienced drillers, this is decidedly the best time yet made in boring for salt. A third well—the Dominion—is now at the depth of 1,000 feet, and it is expected that a week or ten days will suffice to reach the salt rock. The contractors, Messrs. Olin & Bigelow, commenced the well on the 6th or 7th of February—a month later than either of the others—drilled a 5 inch hole for 500 feet, and a 4½ inch hole for the rest, and should nothing hinder them, they will finish the well in shorter time than was taken at any of the others. There is yet a fourth well sinking within the corporation of the town, the Tecumseh. The contractor was unfortunate at the commencement, getting the tools fast, and after spending two or three months in endeavouring to extricate them, he had to abandon the task and start a new hole. He is now getting on fairly, but it will take him a long time to complete the well. Across the river are two wells in course of being sunk, one of which will be completed soon. This makes eight wells in all; a number quite sufficient to supply the demand for salt in Canada for many years. The necessary buildings and furnaces for the manufacture of this article are rapidly proceeding, and will be in operation within three months

The Latest Improvement in Horse-Training.

For the last four days, Dr. H. S. Rary, the celebrated American horseman, has been giving his lectures and conversations at the Magog House, and in all candour we must admit that his mode of handling wild horses is wonderful. Although his method of shoeing and treating lameness is new, it is in accordance with common sense and commends itself by the best of all tests, experience. A young horse of our own badly affected by clicking or striking the front feet with the hind ones, was entirely relieved by the Dr. A horse owned by Mr. Harkness, lame from gravel, was enabled to move off glibly, by being shod with one of the Dr.'s new gravel shoes. A mare, lame from corns and knee sprung, owned by Mr. J. Griffith, was relieved in a few hours. His new theory respecting the bots was clearly illustrated on Thursday by the stomach of a horse, where the bots could be seen in their natural state as an organ of the stomach. The Doctor appears to be governed by nature's laws in all his dealings with the horse. After seeing him operate, and hearing his illustrations, we can readily appreciate the advice of a Montreal contemporary, to go and learn a lesson from nature by attending the Doctor's exhibition. A very wild colt belonging to J. G. Robertson, Esq., after a short training, followed the Doctor up three flight of stairs to the Town Hall, without difficulty.

Mr. Rary will be at Compton on Saturday; at Coaticook on Monday and Tuesday; and at Stanstead the remainder of the week.

We advise all interested in the raising of horses, or who have horses difficult to manage, to attend his lectures.—*Sherbrooke Gazette.*

☞ The hop plantations in Kent, England, have never been known to present so forward an appearance at this season of the year.

☞ The wheat crop in the south of England is looking very promising. It is estimated that it will yield three sacks an acre more than last year's crop.

☞ The weather reports from the agricultural districts of France continue to be favorable.

☞ X. A. Willard says, in the *Country Gentleman*, that more wheat was sown last Fall and this Spring in the dairy region in New York than for many years before. He thinks this approach to mixed husbandry desirable. So do we.

WHEAT CULTURE IN NOVA SCOTIA.—The Nova Scotia *Journal of Agriculture* says: We have had a remarkably severe winter, and the springtime has been a cold, wet, backward season. Our farmers all hope that they may never see its like again. Early in April, however, a good deal of wheat was sown on fall-ploughed land. More wheat has been sown this season than for many years. The Board of Agriculture has distributed, at cost price, 360 bushels of the finest Fife wheat that could be obtained in Western Canada. Last year a large quantity was distributed all over the country in the same way. It turned out so well that nearly all of it was kept for seed. In addition to these sources of extra seed, we know that several merchants imported seed wheat this season, and that the demands upon the Board of Agriculture were far from being met by the supply on hand. It is evident from all this, that a decided attempt is being made to regain our lost ground as a wheat-growing country.

FREE GRANTS.—The Peterborough *Review* says that the free grant system is to be at once extended to the entire "back country." Portions of the Townships of Cardiff and Monmouth are to be thrown open to settlement, and as soon as lists of the lands can be prepared, and other arrangements completed, the vacant lands in other townships, both on the Burleigh and Bobcaygeon roads, are to be placed under similar regulations. The Burleigh road is to be completed as far as the Monck road this season; besides that, the unpatented lands in the old townships, if not settled for, are to be forfeited, and resold by public auction. We hope it is true that the free grant system is to be extended to the "back country" of the County of Peterborough, though we have not as yet seen any advertisement whatever of the lands mentioned by our cotemporary.

DRAINAGE.—We observe that a project for draining some of the swamp lands in the County of Lambton is under consideration. It is said, on the authority of an engineer, that the well-known Brooke swamp can be drained in such a way as to render fit for cultivation some 30,000 acres of deep, rich, loamy, alluvial soil, now utterly useless for agricultural purposes. If that is true, the profit of draining the swamp will be very considerable. The effect will be to create a property worth, at the present value of good wild land in that part of the country, not less than a quarter of a million of dollars. There are other localities in the Province where large tracts of swamp land might be reclaimed by a little draining, and in nearly every case such land, when it is made fit for cultivation, proves of the best quality.

SHORT-HORN BULL, "DUKE OF SOLWAY."—We learn that Mr. John Snell, of Edmonton, has sold to Mr. Archibald McNee, V. S., of Perth, Co. Lanark, for $200, the Short-horn Bull, "Duke of Solway," eighteen months old. "Duke of Solway" is said to be a young animal of rare merits, and combines the blood of some of the best stock in the country, being sired by "Duke of Bourbon," the winner of the sweepstakes prize at the last Provincial Exhibition at Kingston. His dam, "Mary Grey," by imported "Baron Solway," is one of Mr. Snell's choicest cows; she was winner of the second prize as a yearling at the last Provincial Fair at Hamilton. The "Duke," if the people of Lanark avail themselves of his services, will be sure to make his mark in the improvement of the stock of the county.

Mr. Snell, in a recent communication, says that "he feels that he owes to the advertisement in the CANADA FARMER the satisfactory sale of this bull, as well as other sales that he has recently made."

Fruit Growers' Association of Ontario.

A MEETING of the Directors of the Fruit Growers' Association was held at Hamilton on the 20th May, in the County Council Chambers. The President, W. H. Mills, Esq., was in the chair.

It was resolved that the next meeting of the Association be held at Toronto, at the call of the Secretary, who should communicate with the member for Toronto regarding the time of meeting.

Resolved, that the following persons be nominated for judges of fruit at the Provincial Exhibition in September next, viz., W. Holton, R. N. Ball, Rev. R. Burnet, Charles Arnold, George Leslie, D.W. Beadle.

Resolved, that the Association respectfully suggest to the Board of Agriculture that, in view of the probable large exhibition of fruit, not less than six judges be appointed in the fruit department, three of whom shall be assigned to the amateur list, and three to the professional list.

Resolved, that the Annual Meeting of the Association shall be held in the City of Hamilton, on Tuesday, the 22nd day of September, at 7 o'clock, p. m., at the Court House, Prince's Square.

Resolved, that the Secretary cause one thousand copies of the Constitution and By-Laws to be printed for the use of the Association, provided the expense do not exceed $15.00.

Resolved, that an honorary medal be awarded to the originator of any new fruit, which shall have been tested according to the regulations prescribed for ascertaining the merits of such fruit.

Resolved, that any person competing for the honorary medal, shall place at the disposal of the Directors one dozen plants, or, in the case of apples or pears, one dozen scions, of the variety to be tested, which shall be placed under their direction in different localities, with the understanding that the parties so receiving them shall not disseminate the new variety.

Resolved, that any member wishing to exhibit a new fruit on his own grounds, shall notify the Secretary of his desire, in time to enable the Directors, in their discretion, to appoint a committee to visit his grounds, and examine and report thereon in writing to the Directors, and that any person desiring to receive such visit shall, in his request to the Secretary, state the kind of fruit he wishes to have examined, its origin, and the points of excellence.

Resolved, that the Association hereby offer a discretionary prize of forty dollars for the best essay on the apple and its cultivation, as applicable to the Province of Ontario. The essay is not to exceed eight printed pages, octavo, to be forwarded to the Secretary of the Association, D. W. Beadle, St. Catharines, on or before the first of September next, the essay to bear a motto, accompanied with a sealed note containing the name of the author, upon which note the same motto shall be endorsed.

Resolved, that the Committee appointed to examine new fruits, shall, in their report thereon, set forth the particular excellence of any of the fruit, and specially its quality as to hardiness, productiveness, flavor, and market value.

Resolved, that all persons having fruits which they wish to have examined by the Association, are requested to bring them in person to any of the regular meetings, and place them upon the exhibition tables; and all such fruits as shall be found to be of superior excellence, shall receive honorable mention in the Reports of the Association, and through the CANADA FARMER.

Resolved, that one hundred copies of the Declaration be printed, to be used in obtaining members.

Resolved, that the Association hold themselves at the disposal of the Board of Agriculture to assist them with a Committee of arrangement and classification of fruit during the ensuing exhibition at Hamilton.

Resolved, that the following names be added to the Fruit Committee, viz., James Dougall, nurseries, Windsor; —— Adams, Sarnia; W. S. Stripp, Gladstone, Ontario; Archibald McKellar, Chatham; G. W. Scribner, Chatham; A. P. Farrell, Cayuga; Dr. R. R. Smith, Komoka; Wm. Saunders, London; —— Partridge (lawyer), London; A. W. Dedman, Delaware; James Grey, Woodstock; Geo. Ferguson, Port Stanley; Luke Bishop, St. Thomas; J. B. Gordon, Goderich; A. B. Bennett, Brantford; W. A. Smith, Paris Road; A. Morse, Smithville; W. F. Murray, Clinton; James Young, Georgetown; Moses Kraft, Waterloo; Dr. Bolby, Berlin; George Morton, Guelph; A. F. Scott, Brampton; David Allan, Guelph; Norman Hamilton, Paris; Jeremiah Hagerman, Oakville; Thomas Chisholm, Milton; Oliver Springer, Wellington Square; Dr. Dixie, Credit P.O.; W. F. Clarke, Guelph; Peter Trout, Meaford P. O.; Dr. Luther Cross, St. Catharines; Nathan H. Pawling, Port Dalhousie; Gago Miller Virgil, Niagara; M. Y. Keating, Jordan, Ont.; S. J. J. Brown, Niagara; Zenus Lewis, Clifton; W. A. Johnston, Ameliasburgh; J. D. Humphreys, Toronto; —— Racy, Mohawk; Rev. R. Robinson, Owen Sound; D. Resor, Markham; J. M. DeCourtenay, Amherstburgh; R. N. Ball, Niagara.

Resolved, that Messrs. Miller, Burnet, and Beadle, be a committee to examine and report upon Mr. Arnold's raspberries.

Resolved, that the President be authorized in his discretion to appoint a committee to examine and report upon such other fruits as may be called for before the next meeting of the Board of Directors.

The Board adjourned to meet at call of the President.

Oil as a Remedy against Insects.

MANY years ago we were interested in some experiments made by some medical students on the destruction of insect life by oil. The slightest drop of sweet oil, put on the back of a hornet, beetle, bee or similar thing, caused its instant destruction. We were told the breathing pores were closed by the oil, and life was literally smothered out. In after life greasy water was always a favorite mode with us of destroying insects, and we have repeatedly urged it upon the readers of this journal. Yet we are astonished to find how little the hint has been acted on. Almost every day we meet people who ask how to destroy this insect or that, and our drawer is filled with similar inquiries; and to all the idea of grease or oil seems as new a one as if we had kept the matter a profound secret.

Of the millions of people in the United States, how few are there who would not "give anything," as they say, to know how to keep away the cabbage fly from their seed beds; yet about a tablespoonful of coal oil put in a common garden water-pot of water, sprinkled over the seed bed, when the little jumping beetle is noticed as having appeared, will instantly destroy the whole brood.

A correspondent of this journal recently gave us an article on the virtues of coal oil in killing scale insects. We have repeated the experiment on some Daphnes with entire success.

In short, we have no doubt that coal oil, well diluted with water, is death to all kinds of insects, and there is no reason why it should not be in as general use as tobacco is for killing aphides—more valuable, in fact, because it can be applied in so many cases where smoke cannot.

One great point in favour of coal oil is that it acts as a manure to vegetation, while dealing out death to insects. We have seen cabbage beds nearly destroyed by the cabbage fly, have the whole crop of beetles destroyed almost instantaneously; while in a few days afterwards the plants, as if by magic, would cover the bed with luxuriant leaves.

We do not believe that the undiluted oil would prove injurious to the leaves, but such extravagance is unnecessary, as the small quantity we have given is effectual.

No doubt the egg-plant fly, and all insects that can be reached by the oil, can be destroyed.

There is scarcely one of our readers to whom we are sure this hint alone will not be worth many annual subscriptions.

We may add that any oil is as good as coal oil, but that being likely to be more easily obtained when wanted, is recommended; also, care must be used to keep the water in the pot stirred when used, so that a portion of the oil gets out as the water runs, otherwise the oil floating on the top of the water will stay there till all the water goes out and only the oil be left for the last. For this reason a syringe, in many cases, will be preferable to the water-pot, as the oil and water will have a better chance of getting out.—*Gardeners' Monthly.*

Currants and the Currant Worm.

VERY few growers of the currant have escaped the ravages of that vile pest, the currant worm or caterpillar. There are a few localities which the insect has not reached, portions of Center county, (Penn.) being among the number. The currant bushes in the neighbourhood of the Pennsylvania Agricultural College, have, as yet, completely escaped. There are, doubtless, other localities equally favoured, and it has occured to us that in such places, the growing of both the fruit and the young plants might be a profitable business. Where the leaves are not injured the wood ripens more thoroughly, and is more healthy, and plants raised under such circumstances would, doubtless, be more valuable.

The currant worm is easily kept under by the use of hellebore, but to those who dislike the trouble of even this remedy, we would suggest the black currant, which we think deserves a more general introduction than it has yet obtained. Some persons object to its strong odor. To such the variety known as Black Naples might prove more acceptable. As a fruit for preserving, the black currant has few equals. Jam made from it is unrivalled in cases of slight sore throat, and we have seen the black currant, fresh from the bushes, used in dumplings or plum puddings instead of raisins, and with very little deterioration in the quality of the article produced. When cooked, the black currant loses somewhat its offensive odor.

We have no faith in wine made from any fruit except the grape; but to those who live in high latitudes, and whose thoughts have been turned towards "wine plants," we would say that the black currant makes a—shall we say wine?—almost equal to some varieties of port—better than a good many samples of that article, and far superior to the stuff made from rhubarb, elderberries, raisins.—*Country Gentleman.*

☞ Every man who plants a shade tree in Worcester, Mass., is paid one dollar by the municipality.

☞ Fuchsias should be shaded from the mid-day sun. It is a good time now to make cuttings and propagate,

☞ Herbaceous plants, as soon as they have done flowering, may be easily propagated by cuttings. These should be planted in a cold frame in a mixture of sand and loam, and kept shaded until roots have formed.

☞ Tomatoes will bear more abundantly, and occasion the least trouble, if the ends of the shoots, just beyond the fruit, are pinched off. A surface mulch of rotten manure, and if a dry time, frequent watering, well repay in increased size and abundance of fruit.

NEW-MOWN GRASS FOR MULCHING.—Nothing that I have ever used equals new-mown grass for mulching newly planted trees or for placing among strawberry vines. It keeps its place, is clean and neat, leaves no seeds, and creates no fungi, as is often the case with old tan bark or rotten wood.—*Horticulturist.*

DWARF APPLE STOCKS.—Some of our nursery-men advertise dwarf apple trees "on Paradise stocks." These, Dougall of Windsor, in the "Fruit Culturist," says, are "unsuitable for this climate," and "comparatively worthless." We should like to have the opinion of other experienced fruit-growers on this point. Our own little experience inclines us to think the above condemnation too sweeping. There is nothing in our garden we admire more than the diminutive apple bushes, grown on Paradise stocks. They look very pretty, bear wondrously, and so far, appear quite as healthy as the half-standards on Doucain stocks.

Entomology.

The Plum Curculio.

(*Conotrachelus nenuphar*, Herbst.)

THE havoc committed by this terribly destructive little insect among the fruit of not only the finest varieties of Plums, but also of Cherries, Peaches, and even Apricots and Apples, must be only too well known by the majority of our readers; the origin of the evil, however, is not so often seen as the widespread ravages that he commits would lead one to expect. We purpose, therefore, to give a short account of the "Little Turk," as he is often styled from the crescent-shaped mark he makes on fruit.

The Curculios, or Snout-beetles, differ from almost all other beetles in the peculiar prolongation of their heads in the form of a snout; sometimes this appendage is as fine as a hair, at others as broad as the rest of the head; sometimes again it is as long as the whole body, at others it is quite short and inconspicuous; in some species it has the appearance of an elephant's trunk. On this snout, which is really a part of the head, and not a separate organ like the beak or sucker of a bug, or the proboscis of a housefly, are situated the antennæ, and at the top of it the eyes, the end terminating in the organs of the mouth. Our foe, the Plum Curculio, differs from all other Canadian Curculios in having a narrow, black, shining hump on the middle of each wing-cover, and behind these humps a yellowish spot, which is sometimes enlarged into a band across the wing-covers. It is about one-fifth of an inch long, exclusive of the snout, which is about a quarter the length of the body. Its general color is ashen black.

As soon as the young fruit becomes fairly developed, the Curculio begins its work. Our seasons, of course, vary considerably from year to year, but we may as a rule begin to look out for this insect about the first week in June, when it commences to infest the trees, and deserts its winter hiding-places. This year we found some specimens under rhubarb-leaves that had been left a few days on the ground near the plants from which they had been taken, on the 26th of May; some years ago we found one in an old gall on a hickory tree as early as April 20th. Various American writers relate their having found them in November and March, and Dr. Trimble says that he found some specimens under the shingles of a roof late in the fall, and in the chinks of stone walls and under a scale of bark in early spring. Hence we may infer that they pass the winter in their perfect state, remaining torpid like a large number of other insects, until the warm weather bids them wake up and perform their allotted work. The female it is that makes the crescent mark on the fruit, an operation which is thus described by Dr. Trimble in his elaborate work on the Curculio and Apple Codling Moth:—"The semi-circle or crescent-shaped mark is made by the end of the proboscis, and merely goes through the skin. This part of the process, while the fruit is young and tender, is soon finished, sometimes not taking more than two or three minutes. From the centre of the concave part of the crescent, the proboscis is next introduced under this cut skin, and there it slowly works, cutting its way until it can reach no further. The end of this cell or cavity is now dug out or enlarged, to make it a suitable receptacle for the destined egg. The insect has an instinct which teaches her that the surroundings of this cavity must be so deadened that no subsequent growth of the fruit at this part shall press upon that delicate egg and crush it. The preparation of this cell is much the most tedious part of the process, usually taking about fifteen minutes, though sometimes half-an-hour. During most of this time, the Curculio will be found in a pitching position, and with her proboscis entirely buried; looking as the woodcock does when boring for food in the soft ground. This cavity finished, she turns round and deposits an egg at its orifice; then assuming the former position, very quietly pushes that egg with her proboscis to its destined place. Next the crescent-shaped cut is plastered up with a gummy substance that holds the cut edges together for the time being; probably an instinctive precaution against the weather or insect enemies, that might endanger the safety of the egg." This process is repeated on one plum after another till the whole stock of eggs is exhausted. After a few days, the egg hatches out and produces a little white grub without legs, that bores into the flesh of the fruit, and causes its final destruction. After some weeks the injured fruit falls to the ground, and then the grub, being full-grown, works its way out, and enters the ground, there to complete its changes into the pupa and perfect states. The beetles emerge from the ground in August and September, sometimes even a little earlier. The only fruit that does not fall to the ground when thus attacked appears to be the cherry.

Such is a short life-history of this very destructive insect; and now let us consider what remedy there is for it. We need not dwell long upon this, as a correspondent, "Fruit-Grower," in our last issue, gave an account of the very best remedy there is, viz., jarring the trees and destroying all that fall. For full particulars we refer our readers to his excellent and timely letter. We may add that all fallen fruit should be gathered regularly, and not left for any length of time on the ground, and then be either burnt or fed to pigs. By employing these two methods, and persevering in them, a very large proportion of one's fruit can be saved, even though one's neighbours do not look after theirs, but cultivate fresh crops of Curculios for the annoyance of the more thrifty. If all fruit-growers would only unite in employing these simple methods, the Curculio would speedily be banished from our midst, or at any rate be reduced to very insignificant numbers. May we beg that all our readers will this year give the plan a fair trial, save their fruit, and let us know the result?

A Strawberry Bug.

FOR an entomologist to lay claim to infallibility would be absurd in the extreme, since he has to deal with a race of animals which is said to embrace many times as many species as all the rest of the animal creation put together. While, then, we endeavor to be as accurate and correct in our statements as possible, we, of course, do make mistakes sometimes; one of these has lately been very kindly pointed out to us by Mr. Riley, the State Entomologist of Missouri, whom we have the pleasure of numbering among our correspondents.

In the CANADA FARMER for Aug. 1, 1867, (vol. iv, page 238), we gave an account of what we took to be a small *beetle* infesting Mr. Arnold's strawberry plants at Paris, Ont.; this insect turns out not to be a beetle, but a *bug*, though it is uncommonly like a beetle. What we took to be the connate wing-cases, covering, to our surprise, wings for flight, turn out, on more minute inspection, to be the immensely developed scutellum (the triangular piece that separates the wings on the back) of a singular family of bugs, called from this peculiarity *Scutelleridæ*. We have never devoted ourselves to the study of the order *Hemiptera* (true bugs) so much as to that of some of the other orders of insects, and thereforo have but little acquaintance with its classification; nor do we know of any work which treats upon the American species of the order in particular; we are unable, then, to say whether our species is the same as that sent to Mr. Riley by his correspondent, viz., *Corimelæna lateralis*, Fabr., though we have little doubt that it belongs to the same genus. If Mr. Arnold should find any more of these insects upon his strawberry-plants this year, we beg that he will favor us with a good supply of specimens, that we may be able to send some to our correspondents and have the matter set at rest.

Insects on Plum Trees.

"J. J., Campbellford, Ont.," writes as follows:—"Please inform me what it is that causes the fruit of the common wild plum to swell up almost immediately after blossoming, while the tame ones invariably escape? The first time I noticed this disease was about four years ago: I enclose a few specimens of the injured fruit. You will also confer a favour by giving a description of the Curculio; it has not made its appearance here as yet, to my knowledge, unless these curious-looking little creatures which I enclose are specimens of it,—I took them off a plum tree to-day. Please let me know what they are."

We have frequently noticed the disease referred to in wild plums, but do not know its nature or origin. Whether it is the work of an insect or not we cannot say, but we shall endeavor to find out this season. The request for information about the Curculio has been anticipated by the foregoing article, which we prepared as appropriate to the season. The insects enclosed, together with the plums, were crushed "as flat as a pancake" in their transit through the mail-bags. We must again impress upon our correspondents the necessity of enclosing specimens sent by mail in something that will resist a good deal of pressure—stiff pasteboard or tin boxes, for instance—else they are apt to reach us in a perfectly unrecognizable condition. "J. J.'s" specimens, however, are old friends, whom we should think it unpardonable not to recognize; we speak advisedly, they are *our friends*, but deadly foes to plant-lice. They belong to the family of Ladybirds (Ladybugs some people call them—a combination of names that ought to be abhorrent to everyone possessing a spark of gallantry), and are of a deep shining black colour, with a roundish blood-red spot on each wing-cover, whence they derive their name, the Twice-wounded Lady-bird (*Chilocorus bivulnerus*, Muls). These little insects, as well as all the other Lady-birds, should never be killed, for we owe to them in a great measure that all vegetation is not destroyed by plant-lice.

THE GRAPE-VINE FLEA BEETLE (*Graptodera chalybea*).—Now is the time for grape-growers to be on the look-out for this very destructive insect; it is quite abundant in some localities at the present moment. The best remedies for it are hand-picking, which we consider the most effectual, and syringing with strong soap-suds. For a description and figure of the insect, see the CANADA FARMER for 1867, vol. iv, page 327.

CURRANT-BUSH INSECTS.—The numerous foes of the currant-bush are now hard at work at leaf and stem. We have already found nearly full-grown larvæ of the Saw-fly, and small specimens of those of the well-known Moth. A highly recommended remedy for these insects is a mixture of White Hellebore and Alum in water; it is affirmed to be effectual by many persons in Toronto upon whose statements we can rely. We are about to give the receipt a thorough trial ourselves, and shall acquaint our readers with the result. The larva of the moth that bores into the stalks is now causing much injury also; all dead or dying stalks should be cut off and burnt at once.

FLEAS IN SOUTHERN INDIA.—Observing in the "Zoologist" a note remarking on the decrease of fleas of late years, it may interest the writer and others to hear that in this neighborhood, on the contrary, they were never, to my knowledge, so numerous as at the period referred to; I remember to have heard great complaints. I am not aware whether fleas breed and multiply on our shores, though in the South of India I have found them among the sand-hillocks skirting the sea in countless numbers; for instance, on one occasion, when passing a few days (in the year 1832) at a bungalow on the shores of the Gulf of Manar, I could not stroll on the beach of an evening without being covered with fleas from head to foot, so that my white dress was completely dotted and spotted with them. Fortunately, being of a sluggish kind, they could be brushed off by hundreds; however, I was eventually driven back to my head-quarters at Ramnad, finding the flea-plague even worse than the plague of mosquitoes, on the scorching sandy plains around the fort.—*Henry Hadfield; Ventnor, Isle of White, in the Zoologist.*

The Apiary.

Dividing Swarms.

No certain rule can be given as to the right time for dividing colonies, as seasons are so different and localities so unlike with respect to the putting out of blossoms. As a rule, I find that when fruit blossoms early, and good weather prevails during its blossoming, it is safe to expect early swarms. No new colonies can safely be made before drones appear, as on them depends the impregnation of the young queens.

It is always best to choose a time when the nights are warm, or the young brood may suffer after so much surplus population is taken from the hive.

Those who have used moveable frame hives for any length of time will have become familiar with various ways in which colonies may be divided; such need no aid in the matter, but a word or two of caution may be "in order." Never expect to benefit a colony that is not doing well by making two of it; unless a hive is very strong in numbers and in all ways prospering, do not divide it. Generally, such colonies may best be made vigorous by taking away their queen and replacing her by a young one.

Never divide when honey is not very abundant.

In making the division, whatever way you practise, be sure to have the main part of the worker force of the colony with the queen, leaving the hatching brood with few old bees in the old hive. To do this easiest, it is well to have the queen in a new hive on the old stand, while the old one is removed some distance away.

It always pays to rear queen cells eight or ten days in advance of swarming time, so as to give the part of the colony left queenless a queen cell nearly mature, thus saving them much time.

If the greatest yield of surplus honey is the object, it may best be secured by making no more than one new colony from each one in a season; where little fall pasturage is found, it is generally best to be contented with securing one new colony from two old ones, thus:

Take three frames of comb, containing brood and stores, from a good colony, replacing them by empty frames; put them in an empty hive and set it where the one from which the frames were taken stood; then move another strong colony a rod away, and put the one from which you took the frames where that one stood. In the new hive you have brood and stores and a good colony of bees; in the one from which you took the frames, there is still left brood and stores, and by setting it where a good hive was, you secure to it plenty of bees; one of these hives will contain a queen, it matters not which, for both are alike well provided with materials for producing another. The hive that you move a rod away will lose nearly as many bees as if it swarmed, but it keeps its queen and all of its brood, and will soon be strong again, much more so than if it had lost its queen as in natural swarming.

There are many whose bees are still in box hives, who wish to transfer them with the least possible loss to moveable comb hives. Such will find swarming season the best time to do it. The matter is very simple. In the middle of a warm, pleasant day smoke the hive that you wish to drive, in order to alarm the bees and induce them to fill their honey sacs; wait five or ten minutes, and then take the hive and carry it a few yards away; turn it over and put on top of it a box or cap as near the same size as possible. With sticks now drum smartly on the lone hive, making a continued jar, and the bees will mount rapidly into the upper box, and soon be found banging to it like a swarm. Take it off, then, carefully, and set in the shade. Carry the hive from which you drove the bees, to a location two or three yards behind where it stood before; it will keep bees enough to rear a queen and do well. Put your new moveable comb hive on the old stand, spread a sheet before it, and then empty the bees from the box upon the sheet, and they will run up into the hive, and go to work there like a swarm. It is well, if you have any good pieces of comb, to fasten them in the frames, as it gives the bees what all like—"a start in life." If you wish to transfer combs and all from the old hive, it can best be done just three weeks after the swarm is thus taken from it. At that time there will be little or no brood in the combs, and they can be easily handled; they will have a young queen, but she will not have deposited many eggs. Full directions for transferring combs are given in any standard work on bee-keeping. The operation is very simple.—*Mrs. E. S. Tupper.*

The Household.

The Household Lamp.

When suns decline, and crickets sing,
And wandering mists from seaward roam,
When nights no heavenly beacons bring,
Then brightest shines the star of home!

When the brown brooks, with music low,
Watch summers die and autumns come,
When stately golden rods must bow,
What cheer is in that light of home!

When winter strips the shuddering trees,
And chills the wavelet's wanton foam,
When in the world's cold grasp we freeze,
How blest is then that star of home!

Atlantic Monthly.

Emergencies.

PRESENCE of mind, under sudden alarm, is a species of moral courage that is rarer than might at first be supposed, and it requires the test of actual danger, or some stirring emergency to establish any one's claim to the possession of this valuable quality. Many persons are very brave or very wise when danger and embarrassment are at a distance, who entirely lose their self-possession when the time of trial comes unexpectedly upon them. This common deficiency of character is humorously described by Mr. Dickens in the "Pickwick Papers." Who does not remember the scene in which Mr. Pickwick, whilst enjoying with a merry company the exhilirating exercise of sliding on the ice, suddenly falls through with a crash and disappears? The gentlemen of the party, we are told, turned pale; the ladies fainted; Mr. Snodgrass and Mr. Winkle grasped each other by the hand, and gazed at the spot where their leader had gone down; while Mr. Tupman started off at the top of his speed across the country, calling "fire!" and it was not until the features and spectacles, followed by the shoulders of the old gentleman, emerged from the surface of the treacherous ice, and it was also announced that the pond was nowhere more than five feet deep, that the major part of the company recovered their senses, and were ready to perform prodigies of valor in the rescue. We have heard also of the lady whose first thought on learning that her house was on fire, was to save her best china, which she forthwith hastily collected and pitched out of the window. The actual experience or recollection of most readers will, doubtless, suggest similar instances of the want of presence of mind.

There are many cases, however, where the embarrassment arises less from a deficiency of this rare quality than from ignorance of what is best to be done under the circumstances. When people are left to their own resources, and neighbourly help is not always accessible, it is especially important that they should be prepared, by a little simple knowledge as well as common sense, for emergencies that may happen at any time. We remember seeing, many years ago in England, a very useful printed sheet, headed "Hints for Emergencies," in which were given plain and sensible directions for the course of action to be immediately adopted in the event of a variety of accidents in which any one might be suddenly called upon to render aid, such as fire, drowning, poisoning, &c., &c. We do not know whether this useful guide could be obtained now; but any one might, with a little pains, put together a similar compendium of useful hints for his own use, and the time might come when, if memory failed at the moment of need, a reference to such a written memorandum might be of immense value. To aid those of our readers especially whose lot may be cast in the back settlements of the country, we propose occasionally to give a few simple instructions as to the best course of action in the more common emergencies. We will begin with just one or two accidents to the person.

Not long since we gave an extract from one of our exchanges, under the heading "*How to act when the clothes take fire.*" We would again refer to the directions there given for guidance in this emergency, merely reminding the reader that the chief things to do promptly are; to throw over the flames, so as to smother them out, a rug, blanket, or anything of the kind that most readily comes to hand, and to lay the person whose clothes are on fire flat on the ground. When a burn is superficial and affects only a small space, immersion of the part in cold water will generally give great relief. Dredging flour over the burnt part, so as completely to exclude the air, is also one of the best applications in the first instance, and will sometimes be all that is necessary.

Next, let us take the case of *Fainting.* A person suddenly turns pale, and falls, losing his consciousness. Friends are alarmed, and sometimes not knowing what else to do, will raise the person into a sitting posture. Now, this is just about the worst thing that could be done. The pallor of the face should teach us that the heart is acting feebly, and does not send the blood into the head in the ordinary manner. Every facility should be given to let the blood flow towards the brain, and for this purpose a horizontal position, with the head even lower than the rest of the body, is the most desirable. Fresh air is a most important auxiliary; cold water, or even occasionally a little brandy, may be serviceable; but the horizontal position, or, in plain words, lying down, will generally bring about a speedy recovery.

Not to extend this article to a tedious length, we will notice at present only one case more, namely, the accidental taking of poison. In these cases it is not always easy or possible to ascertain what special poison has been taken. The only safe rule, then, applicable to all cases, is the instant administration of some efficient emetic. The best, such as sulphate of zinc or ipecacuanha, may not be at hand; though it is well, by-the-by, for persons living in lonely situations to have a few common remedies in the house. If either of these is procurable, then the proper dose of sulphate of is zinc about a scruple, or half a small teaspoonful, given in lukewarm water. The dose of powdered ipecacuanha is nearly double that quantity—that is, half a drachm, or nearly a teaspoonful. If the first dose of either does not answer the desired end in about a quarter of an hour, it should be repeated. When neither of these remedies is at hand, common table mustard may be used, and is a tolerably good emetic. From a teaspoonful to a tablespoonful, given in warm water, is the proper quantity. In addition to this, drinking freely of milk, or the white of an egg, is in the case of certain poisons a most valuable antidote, and in others often useful.

Perhaps the most common poisons that are taken accidentally are arsenic, corrosive sublimate, and oxalic acid. If it can be ascertained that any one of these has been swallowed, the appropriate antidote should be administered as speedily as possible. For arsenic the best antidote is sesquioxide of iron—a large teaspoonful for a dose. White of egg and milk are also useful. For corrosive sublimate white of egg is the very best corrective; for the poisonous salt unites with the albumen and forms an insoluble compound. For oxalic acid, lime is the proper antidote. This is best administered in the form of chalk.

These few hints may be useful, and worth remembering. In some future article we hope to notice and give directions for the proper course of proceeding in some other emergencies.

WHAT A YOUNG WOMAN DID.—I have an acquaintance in the middle class of society, the income of whose business was a comfortable support for his wife and three daughters. The eldest of the girls found much of her time unoccupied, except with unproductive fancy work, and she said to her mother: "Why should we all be dependent upon father for support? If he should die how helpless we should be. And even if he lives, and is able to work for a long time to come, we might relieve him from much care and anxiety by our exertions, and we might greatly increase our own opportunities for improvement." She followed out her ideas by fitting herself to be a book-keeper. Not satisfied with a small salary, she diligently applied her spare hours to acquiring a thorough knowledge of French and Spanish; and having an object in view, she learned rapidly. When she was able to write commercial letters in these languages, she soon commanded a salary of fifteen hundred dollars. Every morning she walked into the city with her father, where they parted to go to their separate places of business and met to return home in the afternoon. Most fashionable women had probably taken up as much time spending money during the day, as she had spent in earning it. Her example stimulated a younger sister, whom she aided in the development of her artistic talent, till she became a teacher of drawing in a large educational establishment.—*Ex.*

Useful Receipts.

A BAKED APPLE PUDDING.—Boil six apples well; take out the cores, put in half a pint of milk thickened with three eggs, a little lemon-peel, and sugar to the taste; put puff-paste round the dish, bake the pudding in a slow oven, grate sugar over it, and serve it hot.

CAROLINA WAY OF BOILING RICE.—Pick the rice carefully, and wash it through two or three cold waters till it is quite clean. Then (having drained off all the water through a colander) put the rice into a pot of boiling water, with a very little salt, allowing as much as a quart of water to half a pint of rice; boil it twenty minutes or more. Then pour off the water, draining the rice as dry as possible. Lastly, set it on hot coals with the lid off, that the steam may not condense upon it and render the rice watery. Keep it dry thus for a quarter of an hour. Put it into a deep dish, and loosen and toss it up from the bottom with two forks, one in each hand, so that the grains may appear to stand alone.

ARROW-ROOT PUDDING.—Simmer a pint of milk with a few whole allspice, coriander-seed, and half a stick of cinnamon for ten minutes or a quarter of an hour; then sweeten it with sugar, and strain it through a hair-sieve into a basin to one ounce and a half of arrow-root (about a tablespoonful and a half) previously mixed with a little cold milk, stirring it all the time. When cold, or as soon as the scalding heat is gone, add three large or four small eggs, well beaten, and stir well until the whole is perfectly blended. It may then be boiled in a well-buttered mould or basin, or baked in a dish with a puff-paste crust round the edge, and grated nutmeg on the top. From half to three-quarters of an hour will be sufficient to boil or bake it. When boiled, serve it with sauce. The flavour of the pudding may be occasionally varied by using a few blanched and finely-pounded or chopped sweet and bitter almonds—about one ounce of sweet, and half an ounce of bitter—or with orange-flower water, or vanilla.

PICKLED CABBAGE.—A correspondent of the *Country Gentleman* says: "In response to the enquiry, 'how to pickle cabbage?' I send the following, which my folks have tried several years, and I know to be good, and is liked by those who have eaten it. It keeps well a year, and how much longer it would keep I am unable to say. If one is not over nice in regard to the form in which it is served, I think it will suit the palate of any who are fond of the like pickle. Take any quantity of well-formed cabbage-heads, and thick-meated squash, or bell-peppers, and chop them fine and mix. Use about one-third pepper, and two-thirds or more of cabbage after being chopped; for each gallon take one heaping teaspoonful of ground cloves, about half the quantity of ground cinnamon, half a tea cupful of whole mustard seeds, and two tablespoonfuls of fine salt; mix thoroughly and place it in a stone jar, and pour over it scalding hot cider vinegar; cover and set in the store room, where it will keep cool and not freeze. It will answer to use after 24 hours. Small green tomatoes or other vegetables may be added, if desired, and pickled whole. One who does not like to be at the trouble of stuffing peppers will here find an excellent substitute. The vinegar should not rise above the cabbage, only well saturate the mass."

Poetry.

The Grass

The grass, the grass, the beautiful grass,
That brightens this land of ours,
Oh, why do we rudely let it pass,
And only praise the flowers?
The blossoms of spring small joys would bring,
And the summer-bloom look sad,
Were the earth not green, and the distant scene
In its emerald robe not clad.

Then sing the grass, the beautiful grass,
That brightens this land of ours;
For there is not a binde by nature made
Less perfect than the flowers.

The grass, the grass, the feathery grass,
That waves in the summer wind,
That stays when the flowers all fade and pass
Like a dear old friend, behind;
That clothes the hills and the valley dills,
When the trees are stripped and bare;
Oh, the land would be like a wintry sea,
Did the grass not linger there.

Then sing the grass, the bonny green grass,
That to all such a charm can lend;
For 'tis stanneh and true the whole year through,
And to all a faithful friend.

The grass, the grass, the bountiful grass,
Oh, well may the gift endure,
That never was meant for creed or class,
But grows for both rich and poor.
Long may the land be rich and grand
Where the emerald turf is spread;
May the bright green grass, when from earth we pass,
Lie lightly o'er each head.

Then sing the grass, the bountiful grass,
That stays like a dear old friend;
For whatever our fate, it kindly waits,
And it serves us to the end.

Ex.

Miscellaneous.

Respectability of Farming.

THE cities are full of young men—many of them from the country—who are out of employment and are glad to work for enough to pay their board. They could save enough money by working on a farm for a few years to buy one for themselves. But they think it more respectable to sell pins and measure tape. For my own part, I respect any man who is striving to make an honest living by any kind of manual or mental labour. But I give the preference to agriculture, because it is in itself the main foundation of our national prosperity, and because it calls into exercise the best faculties of our nature. A clergyman can be a farmer without soiling his cloth. As I was coming home to-day a city man asked me to give him a ride. "Do you live on your farm now?" he asked, "and how do you like it?" "Pretty well," I replied. After a few remarks as to the scarcity of water, what good sleighing we had had, and how warm it was to-day, &c., he remarked, "I wonder why you would not be a good man to keep tavern." It seems that he and a few others had built a tavern somewhere, and wanted some one to take charge of it. "If you had a few hundred dollars to buy furniture," he said, "you would get rich out of it." I told him I did not know enough to keep a hotel, and that I liked farming. "But," said he, "you could have a farm there, though I have known a good many farmers who went to keeping tavern that soon run the thing into the ground!"

Now, all this was intended to be very complimentary. In his eyes a tavern-keeper was considerable of a man, and in return for giving him a ride, he wished me to go home with the comforting assurance that there was one man at least who thought I was fitted for something better than a farmer. It is to be feared that I did not thank him with that degree of warmth such kind intentions deserved. He will doubtless conclude that "these farmers are a boorish set; they don't know enough to be polite."—*Harris's Walks and Talks.*

FEMALE FARMERS.—When a young lady offers to hem a cambric handkerchief for a rich bachelor, she means to sow in order that she may reap.

☞ An ugly young lady is always anxious to marry, and young gentlemen are seldom anxious to marry her. This is a resultant of two mechanical powers—the inclined plain and leave her.

ALL THE SAME.—An Irishman had to give the password at the battle of Fontenoy at the time the great Saxe was marshal. "The pass-word is *Saxe;* now don't forget it, Pat," says the colonel. "Saxe! faith, and I won't; wasn't my father a miller?" "Who goes there?" said the sentinel, after he had arrived at the pass. Pat whispered confidentially, "*Baas*, your honor."

Advertisements.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the March Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-tf

J. H. THOMAS'

FIRST PRIZE BEE HIVES!

THE FIRST PRIZE has been awarded these Hives at the Provincial Fairs, and many County Fairs, for the last four years. They also obtained the first prize at the Michigan State Fair, held at Detroit last year. In fact they have always been awarded the first prize wherever they have been entered. During the last four years they have acquired a reputation unequalled by any hive heretofore offered to the public. They are now manufactured by steam-power, which will enable me to supply the increasing demand at the following rates, which include a right to make and use both double and single bearded Hives:

Single-boarded Hive	$5.00
Single-boarded Observing Hive—Glass in two sides	7.00
Double-boarded Hive	6.00
Double-boarded Observing Hive—Glass in one side	7.00
Single-boarded Observing Hive—Glass in one side	6.00
Double-boarded Observing Hive—Glass in two sides	8.00

All persons purchasing a Hive at the above rates, (which always includes the right to make), and preferring to order Hives of me, rather than make, will be supplied at the following prices:—D. B. $3.50; S. B. $2.50; or if ordered in lots of three to one address, D. B. $3.25; S. B. $2.25; in lots of six, D. B. $3; S. B. $2. Hives sent safely as freight by rail to any part of Canada. Three hives to one address for the same freight as one hive. Bee-keepers would do well to form clubs and order three or more hives sent to one address, and thereby save freight.

ITALIAN QUEENS AND BEES!

Having secured the services of H. M. Thomas, one of the best practical apiarians in Canada, to assist me in breeding Italian queens, I shall be able to furnish any number at the proper season, bred from the very latest importations. PRICE $5 each. I will also furnish a limited number of Italian Stocks in the fall, at the following prices:—In the D.B. hive, $20; in the S.B. hive, $15; sent by express at the expense and risk of purchaser. The Canadian Bee-Keeper's Guide sent to any address post-paid for 25 cents, five copies for $1. The trade supplied at a liberal discount.

Persons desirous of purchasing territorial rights for my Hives, would do well to apply at once, as I will sell for the next two months, Townships at from $20 to $30, and Counties from $50 to $150.

J. H. THOMAS,
Brooklin, Ontario.

N.B.—Parties residing in the Counties of Carleton, Russell, Ottawa, Pontiac, Renfrew, Lanark, Leeds, Dundas, Stormont, Glengarry and Prescott, and desiring to purchase my hives, must in all cases address their orders to JOHN HENDERSON,
New Edinburgh, Ont.
v5-6-tf

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned. JAMES W. MANN,
v4-20-tf Port Dover, Ont.

LAMB KNITTING MACHINE

Price Reduced to 58 Dollars.

IT sets up its own work, knits all sizes, narrows and widens, knits the heel into the stocking, and narrows off the toe complete—producing all varieties of knit goods. It is *simple, durable, easily operated*, and guaranteed to succeed in the hands of *every purchaser*. Send Stamp for Circular and sample stocking.

JAMES D. ORNE, *Gen. Agent.*
v5-8—tf. 176 State Street, Rochester, N. Y.

SMALL CHEESE VATS!

H. PEDLAR, Manufacturer, will send to any Railway Station in the Province of Ontario, (free of charges,) a first-class Cheese Vat, all complete, in running order, suitable for twenty to thirty Cows, on receipt of $30.

☞ All work warranted to give satisfaction.

Address H. PEDLAR,
v5-10-tf. Box 100, Oshawa, Ont.

JONES & FAULKNER,

(Late J. Jones & Co.)

Dairymen's Furnishing Store!

—AND—

DEALERS IN BUTTER AND CHEESE,

No. 141 Genesee Street, Utica, N. Y.

DAIRY necessaries of every description always on hand, particularly **Pure Annatto**, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.

☞ Special attention given to Canadian orders. v4-19-tf

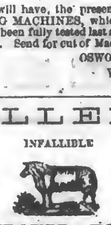
TO FLAX GROWERS.

THE undersigned will have, the present season, a supply of FLAX-PULLING MACHINES, which we can guarantee to do good work, having been fully tested last season. New improvements added this year. Send for cut of Machine and Price List.

OSWOLD & PATERSON,
Woodstock Iron Works.
1st May, 1868. v5-9-6t.

MILLER'S

INFALLIBLE



TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.
v4-14-tf

FARMERS AND GARDENERS

LOOK OUT FOR YOUR CURRANT BUSHES &C.

THE CHINESE

GARDEN POWDER!

DESTROYS ALL KINDS OF

Insects, Grubs, and Caterpillars,

On Currant Bushes, Plants and Shrubs. You will save money, labour and disappointment.

Prepared only by

HUGH MILLER & CO.,
Medical Hall,
v5-11-2t 167 King Street East, Toronto.

GEO. A. DEITZ,

The Great Seed Wheat Grower,

CHAMBERSBURG, Pa., sends free a Descriptive List of the best Seed Wheats in the world. v5-11-6t

FOR SALE,

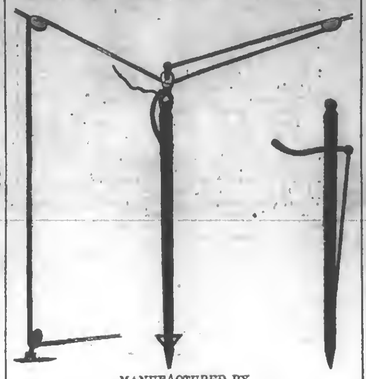
THREE yearling **Durham Bulls**—two red and one roan. Apply to

GEO. MILLER,
v5-11-2t* Markham.

M. L. ROBERTS'

PATENT

HAY ELEVATOR



MANUFACTURED BY

T. WRONG & CO.,

No. 70 BAY STREET,

TORONTO.

PRICE $10, WITH PULLEYS AND ROPE.

☞ AGENTS WANTED. v5-12-1t.

Markets.

Toronto Markets.

"CANADA FARMER" Office, June 11th, 1868.

The market has recovered from the decline mentioned in our last review, and prices are now advancing slowly, and have reached a point considerably higher than our quotations of last number.

Flour—The market has improved during the week, and a considerable advance over last quotations has been established. No. 1 Super now sells without much difficulty at $6. Several lots changed hands at that price yesterday and to-day; in the higher grades there has been nothing doing, and prices are entirely nominal.

Oatmeal—There has been nothing doing in this article during the week. Quotations are nominal.

Cornmeal—The market is dull and nominal. Nothing doing.

Wheat—In sympathy with markets east and west, the market here has improved. An advance of from 5c to 7c over last week's quotation has been established. Fall is now in fair demand at from $1 45 to $1 50. Several car lots have changed hands at these prices. Spring wheat has also advanced; lots have been bought at from $1 40 to $1 42, these prices ruling to-day on Change. The demand has considerably improved, but there is still not much doing.

Oats—The market is dull; several sales of car lots were made during the week at 52c.

Barley—The demand has become very light. For a few car loads $1 05 would still be paid.

Peas—The market has been very dull during the week. No sales were reported; quotations are, therefore, nominal.

Pork—The market is dull and only a retail trade doing; nominally unchanged; worth $23.

Bacon—Slow of sale at from 10c to 11c for Cumberland.

Cut Meats—Trade is confined to retail lots. We quote hams—smoked, 12c to 12½c; canvassed, 13c.

Butter—The market has been steadily declining, and prices may now be quoted at from 12c to 13c. The recent fine weather is having a depressing effect upon the market, increasing the supplies largely and bringing down prices.

Eggs—Market firm and higher. There is a shipping demand for New York. Worth from 10c to 11c for shipping.

Cheese—Very little in the market. Only a retail trade doing—worth about 11c.

Lard—Nominal, none in the market.

Potatoes—There is a fair supply. The current rates are 65c to 70c per bush by the load, and 90 to $1 per bush by the bag.

Apples—The market is firm; choice samples bring as high as $3. Dried, dull; worth $1 25 to $1 50.

Plaster—The market is fairly active; selling prices $1 05 to $1 10 on the wharf.

Water Lime—Selling at $1 60.

Hay—As high as $22 was paid for a few loads to-day; prices ranged from $11 to $21.

Straw—Prices range from $12 to $16.

New York Markets, June 10.—*Flour*—Dull; receipts 5,630 bbls; sales 6,900 brls at $7 60 to $8 10 for super state and western; $8 50 to $9 20 for common to choice extra state; $8 25 to $10 for common to choice extra western. *Wheat*—Quiet and weak; receipts, 96,000 bushels; sales 15,000 bushels at $2 19 for No. 2 spring; and $2 27 for No. 1 do. *Rye* quiet; receipts, 750 bushels; sales 400 bushels Southern at $2 02. *Corn* lower; receipts, 100,000 bushels; sales 70,000 bushels at $1 08½ to $1 09 for new mixed Western afloat; and $1 16 for white Western. *Barley* quiet. *Oats* easier; receipts, 35,000 bushels; sales 47,000 bushels at 86c for western afloat. *Pork* dull and lower at $28 25 to $28 37 for mess $27 62 for old do. *Lard* steady and quiet at 18 and 11¾c to 19¼c for kettle rendered.

Contents of this Number.

	Page
THE FIELD:	
Alsike Clover	177
Prolificacy of the Thistle (with illustrations)	177
Chinese Yam	177
The Yellow Aberdeen Turnip	178
Hop Growing	178
A Handy and Powerful Lever (with cuts)	178
Liming Hay	178
Haymaking	178
Ditching Machine	178
Transmutation of Species	179
Growing Watermelons	179
Fixed Foot-hold for a Fan Mill (with cut)	179
Whetstone Holder and Guard (with cut)	179
Plaster as a Manure	179
The European Larch	179
What our Farmers Reject	179
Worms in Corn	179
Should Posts be planted upside down	179
Bones and Ashes	179
THE DAIRY:	
Milk Cooler (with cut)	180
Rearing Calves	180
Over-Production of Cheese in the States	180
Salting Butter, &c	180
Dairy Meeting at Stouffville	180
French Method of Sending Milk	180
Milking Machines	180
New Cheese Hoop	180
STOCK DEPARTMENT:	
The Circulation of the Blood	181
Experiments in Feeding Leicester and Merino Sheep	182
How to Fit Collars to Horses' Shoulders	182
The Best Kind of Hogs	182
Cattle Selling in the United States	182
Stable Floors of Gravel, Stone, and Coal Tar	182
VETERINARY DEPARTMENT:	
Teeth and Teething in Horses	182
Contagious Diseases	183
"Hooks"	183
POULTRY YARD:	
Standard of Excellence in Exhibition Poultry	183
Do Poultry Pay?	184
Care of Young Turkeys	184
CORRESPONDENCE:	
County and Township Grants	184
Grass in Orchards	184
Thorn Trees for Hedges	184
Mowers and Reapers	185
Weevil	185
An Old Man's Hints	185
Black Knot in the Plum Tree	185
Wells	185
EDITORIAL:	
The Provincial Exhibition	185
Railway Gardens	185
New York Agricultural Exhibition	186
Report of the Secretary of the Michigan Board of Agriculture	186
The Season	186
Wool	186
Officers of Agricultural Societies	186
Presentation	186
Treatment of Emigrants	186
AGRICULTURAL INTELLIGENCE:	
Emigration from the East End (London)	187
Preserving Meat by the Gamgee Process	187
Goderich Salt Mills	187
The Latest Improvement in Horse Training	187
Brief Items	187
Wheat Culture in Nova Scotia	187
Free Grants	187
Drainage	187
Short Horn Bull, "Duke of Solway."	187
HORTICULTURE:	
Fruit Growers' Association of Ontario	188
Oil as a Remedy against Insects	188
Currants and the Currant Worm	188
Brief Items—New mown Grass for Mulching, &c	188
Dwarf Apple Stocks	188
ENTOMOLOGY:	
The Plum Curculio	189
A Strawberry Bug	189
Insects on Plum Trees	189
The Grape Vine Flea Beetle	189
Currant Bush Insects	189
Fleas in Southern India	189
THE APIARY:	
Dividing Swarms	190
THE HOUSEHOLD:	
The Household Lamp	190
Emergencies	190
What a Young Woman Did	190
Useful Receipts	190
POETRY:	
The Grass	191
MISCELLANEOUS:	
Respectability of Farming	191
Facetiæ	191

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 25 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

CLUBS will be furnished at the following rates:—

TEN COPIES for..... NINE DOLLARS.
TWENTY COPIES for..... SIXTEEN DOLLARS.
FORTY COPIES for..... THIRTY DOLLARS.
ONE HUNDRED COPIES for..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

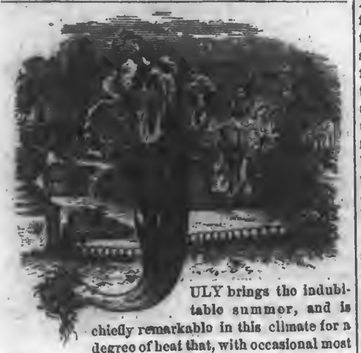
THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

VOL. V. No. 13. TORONTO, CANADA, JULY 1, 1868. POSTAGE FREE.

The Month.



ULY brings the indubitable summer, and is chiefly remarkable in this climate for a degree of heat that, with occasional most welcome relentings, keeps us almost constantly in a sweltering condition, and makes our anticipations and memories of the month rather painful than otherwise. We hail June, but dread July. "Ike Marvel" says: "I picture July as a stout woman perspiring fearfully; yet she wears a cheery, honest face, and if she have none of the bridal freshness of May and June, she wears the honours of maternity, and leads in a great brood of flowers and fruits in her train."

The mean temperatures for this month at various leading points in Canada are as follows:—

Stratford	66° 64'
Hamilton	72° 47'
Barrie	71° 88'
Toronto	70° 40'
Belleville	71° 87'
Montreal	69° 35'
Quebec	71° 00'
St. John, N.B.	61° 75'
Halifax	61° 00'

The above table shows nearly four degrees difference between Toronto and Stratford, makes Toronto and Montreal nearly alike, and, strange to say, gives Quebec a slight superiority in point of heat over both Toronto and Montreal.

We are still having a splendid season. The June frost put in a very feeble appearance, just enough to be identified, but doing no mischief. Copious rains have fallen from time to time. Nature seldom wears robes of such gorgeous green as the present summer. It has been a most favourable time for transplanting, and nurserymen, who are usually treated to many unjust execrations on account of dead trees, will this year have immunity from censure. Evergreens never wore a richer or more varied foliage than now. Grain and grass are most luxuriant. The face of the earth is radiant with smiles, and bewitching with beauty. There is promise of abundance of fruit, and crop prospects generally are all that could be desired. Will farmers find any cause for grumbling this year? As a class, they are so given to complaining, and so fearful it should be thought they are doing well, that we have our misgivings lest even the present season may not escape without some fault being found with it. The grain stalks will be so heavy that there will be lodging, the midge will commit a world of havoc, some of the best trees in the orchard will break down under the load of fruit, produce will be so plentiful that the prices will be low. Yes, not a doubt of it, but in the song of the year there will be a low, bass (base?) note of dissatisfaction with something or other. But if ever heaven rebuked this disposition surely it is now.

Thorough cultivation of the soil, unrelenting slaughter of weeds, turnip hoeing, hay-making, and wheat harvesting are the chief labours of the month. All crops that admit of it are greatly benefited by frequent stirring of the soil about them. July is a most favorable time for the extirpation of weeds. Only scratch them out of the ground, and the scorching sun will do for them very quickly. In a damp, cool time it often seems of but little use to hoe among weeds, they take root again so quickly, but the July heat finishes them in no time. Even the Canada thistle will "cave in" if hoed up or mowed down in July. The latter process is highly recommended by many farmers. It is especially likely to be effectual if rain come shortly after the mowing, as the wet filling the stalks and settling into the roots, induces quick decay. Almost the only bit of advice necessary about haying is to be sure and cut at the proper time; not too soon, or the fodder will be deficient in substance and nutritious properties; nor too late, or it will be tough, woody, and sapless. Grass ought to be mowed between blossoming and seeding. Very much the same advice may be given about harvesting wheat. The *Illustrated Annual Register of Rural Affairs* says:—"Cut wheat a week before full ripe. The grain will weigh more and be better. The straw will be brighter and richer." Early cutting of grass not only improves the hay, but secures a better after-growth for a second mowing, or for pasturage.

A word about the turnips. Early in July is the time to secure a good plant, and attend to proper thinning in the rows. Re-sow if there be extensive failure, through fault in the seed, or depredations of the fly. Gaps in the rows may be filled up either by transplanting or sowing again. When too late for Swedes, Yellow Aberdeens and White Globes may be sown. One great essential to success in turnip-growing is to get the plants thinned at the proper time. If left too long it is almost impossible to retrieve the error. A sharp hoe, about eight inches wide in the blade, is the tool to thin with, and a skilful hand will go over the ground very fast. This well done, and all danger [illegible] fly past, they will grow very fast quickly [illegible] the ground, and form bulbs.

Though [illegible] end of June is the usual time for sowing buckwheat, it does well most seasons if sown early in July. We recommended this crop last month for cakes and green manure, but forgot to speak of its value to bee-keepers. Buckwheat honey is not a choice table article, but it is good enough winter feed for the bees themselves, and it is easy to rob them of their white clover stores, and compel them to stock up again from buckwheat blossoms. The great drawback to bee-keeping in this country is the want of late summer and early autumn forage. This is removed in localities where buckwheat is largely grown.

Happy is the farmer who has green corn, vetches, or other soiling crops, wherewith to eke out the pasturage so apt to fail under the fervid heats of July. His milk pails shall still be full to overflowing, his butter and cheese rich as in June, his young stock shall grow without check, and his teams continue fat, sleek, and strong to labour. He that has no patch of green fodder for a time of need in July, may yet have one for a similar time in September. A rich bit of ground near the barn should be chosen for this purpose, and sown forthwith.

Orchards will be grateful for a stirring of the soil this month. Over-production of fruit should also be guarded against, and care taken that the trees are not broken down through being over-loaded. Now is the time for thumb-pruning of young fruit-trees, and thereby giving beauty of shape, vigour and fruitfulness to them. Budding may be done so soon as the terminal buds are well formed. Grape vines may be layered this month, and well-rooted plants obtained by winter. The duties of the garden in July are more than can be well enumerated. In fact their name is "legion" at all times when work is practicable. Extermination of weeds is the chief thing to be done this month. This must be thoroughly accomplished year by year. "Eternal vigilance is the price of" a garden, as well as "the price of liberty."

July is the Apiarian's harvest. Now, if at all, the surplus honey boxes are to be filled, and such arrangements made as will maintain stocks in full number and strength. Put on boxes forthwith, if they have not yet been supplied. Prevent late swarming, or unite two or three to make vigorous colonies. There is nothing more conducive to successful bee-keeping than to see to it that colonies are strong. Weak stocks are liable to many evils that never trouble strong ones. Some bee-keepers imagine that strong stocks consume far more honey in proportion than weak ones, and are therefore harder to winter. This, however, is a mistake, as is every other argument in favour of weak rather than strong colonies. The value of an apiary is to be estimated, not by the number, but by the weight of the hives composing it.

The Field.

"Eight Dollars an Acre."

A WRITER in the June number of the *American Journal of Horticulture*,—a periodical, by the way, of great excellence,—mentions the case of a Vermonter who, reporting his management of his farm of 125 acres, finds a balance for profit of $732.68 on the year's operations, and seems quite contented in view of the result, complacently remarking: "This, I think, is better than money at six per cent., and answers the question as to whether farming is profitable." Allowing for the woodland, this is about eight dollars an acre. This case is used to point a contrast between the said Vermont farmer and the New Jersey market gardeners, one of whom, a fair average specimen, is reported to have made $711.50 from less than four acres of extremely light land, or within a trifle of the gain upon thirty times the same number of acres devoted to grass and grain, in the case first instanced. Of course, near access to a market like New York or Philadelphia goes far to explain the difference, for the four acres of "truck" side by side with the farm crops on some White Mountain slope, would have been worth little more than the average profit per acre of the farm. Our object in referring to the Vermont example is to make it the occasion of putting three questions, which we beg our readers attentively and seriously to ponder.

I. How many farmers know what they make per acre annually? In other words, how many farmers are there who keep a set of accounts? We fear there are very few who have data on which to frame an answer to the enquiry, "what are your profits per acre?" Beyond vague general impressions on the subject scarcely any can go. When the crops are short they have an indefinite idea that they are not doing much, and when there is an abundant harvest they have a similarly indefinite idea that they are not doing so very badly; but, generally speaking, farmers "shoot in the dark," and "go it blind." Now, surely, this is discreditable and undesirable. Why should a large farm be carried on in a way that would be disgraceful in connection with a little huckster's business? No commercial concern could be reasonably expected to prosper, if carried on after the fashion on which too many farms are conducted. Confusion and loss would be the sure result. We conjure all and sundry to keep note of expenditure and income, so as to know how much per acre they are making year by year.

2. Is there good reason to think that farmers generally, take one year with another, clear "eight dollars per acre?" We apprehend that a negative reply must be given to this question. There are, doubtless, those who are making far more than the figure above mentioned; assuredly there are those who make much less; while we fear the majority cannot flatter themselves that they reach the average named. We know a better-than-ordinary farmer, cultivating over a hundred acres, who stoutly maintains that, taking one year with another, he is not so well off as a book-keeper or salesman who has a salary of six hundred dollars a year, and who would be glad to sell his farm, and take a situation of the kind just named. We have no objection to be contradicted, and to stand corrected by "stubborn facts,"—indeed, we should rather like it than otherwise—but our present conviction is, that it is by no means the majority of our farmers who make a yearly profit of "eight dollars an acre."

3. We have yet another enquiry to put, and it is this, ought a nineteenth century farmer to be contented to make *only* "eight dollars an acre?" We answer, decidedly, *very decidedly*, not That sum implies less than twenty bushels of wheat per acre; less than three hundred bushels of turnips per acre; not much more than a ton of hay per acre. A good system of rotation, a well-balanced quantity of stock and produce, liberal manuring, good tillage, a wise mixed husbandry, ought to accomplish more than this. Capital wisely invested, and labour well directed, should assuredly yield a better return. Such a balance sheet can hardly be said to exhibit successful farming. It does not satisfactorily meet the question, "Is farming profitable?" Contentment is a virtue only when we are doing our best. Let every effort be made to bring out the innate capabilities of the soil, and the recompense is certain. To till a smaller quantity of land, and do it better, would be the part of wisdom with many. Our counsel to every Canadian farmer is this: Keep exact accounts, work up your land to the highest point of fertility practicable, and set for yourself a higher mark than "Eight dollars an acre."

Clover versus Fallow.

To the Editor of THE CANADA FARMER:

SIR,—More than four months having passed away since you published my remarks on the subject of the Canada Thistle, and of an inexpensive way of getting rid of them, I had concluded that the thistle-growers of Canada saw no reason to trouble themselves further about it, but your number for May 15th has agreeably disappointed me. My outspoken, but friendly opponent, Peter Shisler, has done his best, in reviewing my letter, published in the first two numbers of this year's issue, to support a plan which I think thoroughly detrimental to the farmers' interest, and as such seriously affecting the welfare of the whole Province. We, as a family, are constantly in the habit of reading your paper, which has become quite a household necessity, and sometimes there is a little grumbling that the *two weeks* seem a long time, and sometimes I have heard remarks as follows: "Well, now, that is well worth knowing," "Yes, that is worth the year's subscription." But there are articles now and then make their appearance which cannot fail to puzzle, the opinions expressed being nearly as opposite as the poles. Last year a writer appeared on the stage, recommending his *eighty* bushels of potatoes to the acre, for seed, and this curiosity excited no reply. In your April number you quote from a States paper a plan requiring (as I understand it) about eight bushels an acre, which is a considerable difference. These extremes, while they puzzle, set men thinking, and from thinking to experimenting for themselves, and then they are on the right track, and will not fall in the end to benefit themselves. The question as to which is the best mode of subjugating the thistle (as subjugated they must be) is a subject fit for the philanthropist, as well as the philosopher, and whoever shall accomplish the task will be entitled to the grateful acknowledgments of the people of the Province. In submitting this for your consideration, (as a rejoinder to Peter Shisler's last letter, published in the CANADA FARMER, 15th May) you will please remember that my remarks applied to the two writers, (and the only two of the year) namely, the steam-plough advocate and to P. S. The first has remained silent, and the second has come out square on the mystic fallow as the great remedy for the great evil.

I quite agree with the substance of the first paragraph of the letter of P. S., namely, "The theory or practice that cannot stand a scrutinizing investigation should go down." He also informs us that "too many false systems and humbugs have been imposed on the farmer, causing him to spend time and money to no purpose," and yet he only mentions one, namely, "cutting (thistles) *in the moon*." In this paragraph P. S. has dipped his pen in vinegar, and approved of a mild mixture of *invective*, in defence of the misguided and abused farmer.

In the second place, he becomes jubilant, if not eloquent, in declaring "that my arguments show most conclusively, and ought to convince the most sceptical, that his method is the right one." I have heard that Irishmen are allowed to speak three times, Scotchmen twice, but an Englishman is expected to say what he means. I had no idea that his "method as set forth in his November letter," and what I suggested, were the same. His method made summer-fallowing superior to everything else. I entirely repudiate the utility of the plan, while neither himself, nor the advocate of steam ploughs, even so much as hinted at the smothering-out system. Therefore I must contend there is as much difference between the two methods as there is between the two methods used by the dog and cat in catching a mouse. The canine goes to work in a most resolute and laborious manner, and sometimes will continue for days successively, using the different tools at his command, such as teeth and claws, but more frequently gives up the hard job as a bad case, and so fails in his undertaking. The feline goes about the business just the very opposite of the canine, and, by waiting only a short time, the prey comes out from sheer necessity, and the feline pounces on it without spending any labour at all. I hope, by being allowed to speak twice, I shall be better understood.

I think my system might commend itself to all, on the score of economy at least, so far as to induce a trial, because no one can lose by it; and, permit me to say, no one will fail in accomplishing the object sought by the trial. But I fail to see anything new in P. S.'s "method" of fallowing, as set forth in his November letter; and why is it now put forth as a panacea for the evil? The simple routine of farmers in this locality for the past thirty or forty years (as I learn) is to sow peas, wheat, oats, (and of late years) barley, seed with timothy or a mixture of clover and grass; and every year it is held essential to good farming to cultivate a fallow. This routine does not differ, as I can see, from the "method" set forth by P. S. in the November letter. Then in favour of the plan recommended by myself are the aged and grey-headed, while the disastrous consequences of careless or bad farming would afford additional evidence on my side. I have seen the seed grain that was to precede the timothy crop mixed with not less than from twenty-five to one hundred thistle-heads, and plenty there are who seem so thoroughly ignorant about thistle-seeds growing, and consequently give themselves no concern about the mixture of thistle-heads with such seed grain. Such parties may, perhaps, fortify themselves in this careless practice by quoting our friend's dictum, that "not one in a million of thistle seeds ever grows." This class of farmers are "neither few nor far between." They have long since cut down their last stick of timber, and have not another fresh field to break up; their whole farms are being "run out," and the "plaguey" thistles are overrunning everything. As a very general rule, we see such farmers' stocks thrust out on the highways, "to pick about and get a little" of what they can find even before the snow is gone, because, we are told, "hay runs short, straw is run out (too much has been sold, perhaps), and roots didn't grow any last year, or it pays better to sell than to feed them." Yet, talk to these men about doing away with the fallow system, and you touch them in a tender place. If any were to ask me, what they could do with their land without fallowing, my answer would be, give it to some one (and four dollars per acre with it) to take it off your hands for the year, who would use it properly, rather than abuse it yourself by cultivating a fallow. Or, secondly, why not have a field of a clover lay to plough down after the first or second crop? or, thirdly, as a last and desperate recourse, why not have ten acres of roots? If it produced only two hundred tons it would pay better than cultivating a fallow; it would furnish abundance of food for their half-starved cows in the spring, and do away with the necessity of selling their *baby* calves at from twelve to twenty days old. They might then feed and fatten them to the age of eight or ten weeks, when the meat would have passed a transition state to something wholesome and nutritious. Then one-fourth of the calves that are now slaughtered would suffice, and the farmer might raise not less than four times the stock that he now does, and the Province of Ontario might become a great emporium either for live or dead stock; its soil and sunny seasons being so pre-eminently suited for the growth of all the roots, as well as cereals, that any farming community can need or wish for. The practice of growing roots instead of cultivating fallows would enable the farmer of one hundred acres to keep an extra man and boy, and (in many cases

that I have seen and known) he might spare the housewife from such laborious work as pitching whole fields of grain, climbing a loft to throw out a load of hay for market, or taking to the scythe to help mow a compound crop of grain and thistles, besides attending to the cows and pigs, &c. All this, over and above the whole weight of household duties, entirely devolving upon her unwearied exertions. Allow me to refer once more to the words already quoted, viz., "It is reasonable to suppose, not one thistle seed out of a million ever grows." This statement I consider is fraught with mischief, and is a serious error. To fully explain and explode such a mistake would require a separate article. But for the present I will only ask in reference to his own method of destroying thistles, at what cost has it been achieved. The loss of a year's crop, added to the expense of cultivating his fallow, say $20 per acre, which for thirty-six acres amounts to the considerable sum of $720. This method carried out through a hundred acre farm would make up the snug little sum of $2000. This in a financial point of view amounts to something. To fallow a tenth part of the arable land now under cultivation every year would enable the farming community to count their losses by scores of millions. I challenge P. S. (or any of his numerous followers) to show how land is benefitted by fallowing. I have one little case to report, and would that it were so perfect a success as the thirty-six acres of P. S. I had a piece of land cut off by a swamp, and it was some years before I could come at it to seed it down. This piece of land was thoroughly infested with thistles. I never attempted by fallow, or otherwise, to destroy them (only keeping them from seeding). The land was ploughed in 1866; sowed with oats, and seeded with clover, and mowed twice in 1867, and in the third week of May, 1868, when thistles were generally from six to nine inches high, I made diligent search for thistles, and could find only just two, and those miserably weak, and not more than from two to three inches high, and they grew on a spot where the clover was a little thin. I almost conclude that had the clover lay been ploughed in the fall, these two might never have been found to have told the tale. In your note, Mr. Editor, attached to Mr. Hammond's enquiries, I think you have illustrated and placed the subject in a very intelligible position, by stating the *partial* success of your fallowing, and what you might reasonably expect in another year, namely, success in the perspective, but never in the possessive. After fallowing and seeding with timothy, thistles will surely spring up again, (the country being full of flying seeds.) Then what is to be done? I suppose the reply will be, fallow again, to be sure. Twenty-five years ago, demagogues in the old country got a considerable hold on their ignorant followers by persuading them that the best thing to put the whole nation to rights was to divide the property of the country, and to make all men equal. A gentleman said to Pat, "suppose it were so; in twenty-four hours there would be great difference again, for some would save and some would squander; then what could be done?" "Nothing aisear, yer honour; divide again."

PUBLICOLA.

Young Grass for Hay.

MR. C. L. FLINT, Sec'y Mass. Board of Agriculture, in 1862 visited several European States. The leading object of his visit in "those foreign lands," was to make himself acquainted with the agricultural practices of the farmers in the "old world States." His mission was a success, the results of which are published in the Annual Report of the "Agriculture of Massachusetts, 1862." In writing respecting the grass or hay crop in Lombardy, (Italy,) he says:—

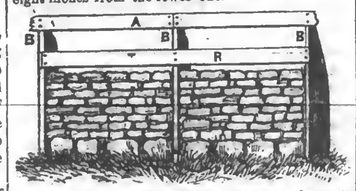
"To me, previous to seeing this fertile country of Lombardy, made fertile wholly by its admirable system of irrigation, the results that I had frequently read of—seven, eight, and nine cuttings a year—always appeared chimerical, but after travelling through the length and breadth of the watered district, I am prepared to believe that an enormous quantity of grass can be cut from it. Another thing has impressed me strikingly here, and that is, that the Italians understand the period at which grass should be cut, to make the most of it, *better than we do*. I nowhere saw grass allowed to stand even into blossoming; it was cut in a very green and succulent state, when full of its sweet young juices. In hundreds of instances, perhaps thousands, I saw men and women—mere frequently the latter—mowing grass less than six inches high, often less than four, and very often, and in many countries, cutting grass that our farmers would never think of cutting. So careful and so saving are they in all parts of the continent, that grass is cut very green, very often, and very close to the ground, almost universally. But they often apply a dressing of liquid manure immediately after cutting, and I saw it in innumerable instances carried out upon the backs of women, and applied by the slowest of processes, distribution by hand, often making an extremely bad smell, to be sure, after it was first applied, but causing a wonderfully rapid start and growth."

Bag-Holder and Tunnel Combined.

THE engraving represents the simplest, most convenient, and altogether the best arrangement for holding bags while filling with grain, meal, or anything else put into bags. It consists of a metallic tunnel, to which are attached four steel hooks, which hold the mouth of the bag distended in such form as readily to receive the grain from the measure or shovel without the inconvenience of filling the bag alone.—(*Prairie Farmer.*)

Wall and Board Fence.

IN many localities it is desirable and convenient to build a fence, the lower portion of which is stone and the upper of boards. I do not know of one that possesses so many advantages as the one shown herewith. The posts, B, B, B, are made from plank, two inches thick, and one foot wide, and of any length to suit the height of the fence. The portion above the wall is tapering, as shown in the figure R is a board six inches wide, the lower edge of which is nailed on the post, two and a half feet from the ground. A is a board four inches wide, and placed eight inches from the lower one.



Directions for building a Fence.—First, set the posts B in the ground; two feet will be about the depth; nail on the boards, or the upper one at least, when you are ready for laying up the wall. The nearness of the posts to each other, and the width, will enable you to use a great many round or coble stones in its construction, with a certainty of their remaining.

The superiority of this fence over the common round post and wall-fence, consists in—1. The wall never falls or tumbles down around the post, as they are laid between, and not around the posts.—2. The post never heaves by the action of the frost, as the stones in the wall hold it with the power of a vice, so to speak.—3. I consider this the only cheap and durable plan by which a half-wall fence can be constructed, and it looks neat and is substantial, as I can testify from examination.

Barrington, Yates Co. N. Y. L. D. SNOOK,
in *Country Gentleman.*

Flax Culture.

To the Editor of THE CANADA FARMER:

SIR,—It is now some time since I troubled you with a few lines on this subject, and I have much pleasure in handing you a letter from a gentleman of well-known experience, not only in the manufacturing of machinery used in this department, but a practical spinner and weaver, by which you will see he points out the plan whereby this branch of industry can still be successfully carried on in Canada.

We have not had a season during the last ten years as favourable for a flax crop as the present, and those who still continue to grow it in the counties of Waterloo and elsewhere, will find the crop remunerative. There need be little fear on the part of the manufacturer if he will only follow the advice offered by Mr. Walker in the accompanying letter.

J. A. DONALDSON.

Toronto, June 22, 1868.

"To J. A. DONALDSON, Esq.

"DEAR SIR,—I was very sorry to hear of the misfortune at Streetsville, and since arriving here I have heard that the linen mill of Messrs. Elliot, Hunt & Co., of Preston, has been given up. What are the flax-growers of Canada going to do for a market for their produce? There is now no consumption to speak of in Canada—the distance and expense of carriage prevents the sale of it in England. They have therefore to depend entirely upon the demand in the United States, which is liable to be stopped any session of Congress by a heavy additional duty. Does it not appear that the best way of securing a market is to manufacture in Canada the flax grown in Canada? But it will be said, what encouragement is there for men of capital to invest in a business, seeing that those who have attempted it in this country have not succeeded. I answer that not one manufactory has been planned, arranged, or managed in a way to succeed. They would not have succeeded anywhere, and I am sorry to say it, because the proprietors, in two instances at least, deserved success, having spared no pains or expense to render their works efficient, but they were misled at the very beginning. There is no reason whatever why linens cannot be made in Canada. The material produced in the country is quite good enough for the usual linens used. The expense in freight, duties, &c., on imported goods would more than make up the difference in the cost of labour, and now that cotton has advanced from 7*d.* to 12½*d.* per lb, in Liverpool, with every indication against a reduction below the latter figure, there is no doubt any party going into linen manufacturing in this country, on the same plan as that adopted in Europe, would make the business answer well. Should you wish to write me at any time, please address to care of Messrs. T. & W. Hunton, Ottawa, C. W., or to Box 4181 Post Office, Boston, Mass.

"JOHN WALKER."

Greasing Wagons.

BUT few people are aware that they do wagons and carriages more injury by greasing too plentifully than in any other way. A well-made wheel will endure common wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but if this matter is not attended to, they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub and work its way out around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wood axle-trees, and castor oil for iron.

Just grease enough should be applied to the spindle of a wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends, and be forced by the shoulder-bands and nut-washers into the hub around the outside of the boxes.

To oil an iron axle-tree, first wipe the spindle clean with a wet cloth with spirits of turpentine, and then apply a few drops of castor oil near the shoulder and end. One teaspoonful is sufficient for the whole.—*Rural American.*

Canadian Natural History.

Canadian Ducks.

THROUGHOUT nature, and especially among animated creatures, there is everywhere manifest, along with an almost endless variety of detail, a beautiful uniformity of type. This is especially remarkable in the great class of animals to which hitherto the brief notes in the Natural History Department of the CANADA FARMER have been confined, namely, the *Vertebrata*. Throughout the whole of this class we trace the same general principle of structure, and, indeed, the very same parts and members endlessly modified to adapt the form to the peculiar requirements and habits of the individual. Take, for instance, the fore-arm, and notice how wonderfully the same fundamental type is maintained, and yet

modified in the different orders of animals. The same variety, with uniformity, is observable in the different members of each order. Thus, among birds, the general character of whose form fits them for the air, some are adapted for spending a great part of their time seeking their food and taking their rest on the ground, having recourse only occasionally to their powers of flight; whilst others pass half their lives on the wing, and rest only at night amongst the trees; and another tribe again are specially fitted for floating on the surface of the water, where they find their food, and revel in the enjoyment of their appropriate element. Here, while the bird type is perfectly preserved, we see the breast broadened, and the whole body flattened to fit them for floating, while special arrangements are made in the plumage for throwing off moisture, and in the feet, forming jointed and flexible paddles, for progression through the water, or rather on its surface. The whole tribe of waterfowl are singularly beautiful and graceful creatures, and there is scarcely a more interesting study to the naturalist than the characteristics and habits of this extensive portion of the feathered race. Abounding as Canada does in lakes and streams, we should expect to find numerous representatives of the order amongst our native species or occasional visitors, and in this expectation neither the naturalist nor the sportsman will be disappointed. Canadian Natural History has hitherto had but few expositors, and, doubtless, there are many species of animals to be found that have not yet been enumerated in the Fauna of the country; but in the admirable list furnished by Professor Hincks, we find there are no less than thirty-eight species of the Duck tribe alone mentioned as being found more or less generally on Canadian waters. Specimens of nearly this number of distinct species of Duck were sent by the Board of Arts, along with other birds, to the Paris Exhibition. We have selected four of these for notice and illustration, namely, the Mallard (fig. 1), the Shoveller Duck (fig. 2), the Widgeon (fig. 3), and the Summer Duck or Wood Duck (fig. 4). These are all remarkably beautiful and characteristic species. The drawings have been made from specimens in the Toronto University Museum, or from the illustrations in Wilson's American Ornithology. To this excellent work we are also largely indebted for the description of the birds.

All the different varieties of wild duck are in their natural state extremely cautious birds, alert and quick, and difficult to approach; either lying closely concealed among the reeds of their favorite marshes, or taking suddenly to rapid flight upon the least alarm. They are greatly sought after as supplying a delicate article of food, and are sometimes, on this account, mercilessly slaughtered by sportsmen, or by most unsportsmanlike hunters. Various methods have been, and are still, employed in different countries to capture them. In India and Ceylon, we are told, the natives catch them in a curious manner. A man covers his head with a calabash, or large gourd, perforated with holes to see through, and thus disguised, wades into the water to such a depth that only his head is above the surface, and approaches right into the midst of the birds, who perceiving nothing but apparently a floating calabash, do not take alarm even when one after another of their number is caught by the legs, drawn under water, and attached to the girdle of their treacherous destroyer. A common method of decoying them is by the use of wooden figures shaped and painted to resemble ducks. These "dummies" are floated on the water, and enticing the wild birds, bring them within gunshot of the concealed hunter. Sometimes a frame, with a number of these figures upon it, is attached to the bow of a skiff, which is itself decked down to the water's edge with reeds, rushes, and coarse grass, so as to present the appearance of a small island, with ducks swimming about it. Thus concealed, the gunner can float his skiff within easy range of the birds, and take a murderous shot at close quarters. An elaborate account is given in Berwick's History of British Birds of the method practised chiefly in the fen districts of Lincolnshire, and called the "Decoy." A long curved ditch is dug from the edge of the lake inland. Over this ditch, which is wide at its junction with the lake, but gradually narrows towards the other extremity, is stretched, on arched hoops of wood, a net, terminating at the narrow end in a sort of purse or *cul de sac*. Along the side of this curved ditch are placed a series of screens formed of reeds, behind which the trapper hides, showing himself now and then to drive the birds toward the narrow extremity of the ditch. He is usually assisted by a trained dog, and also by tame ducks, employed to entice their wild congeners into the fatal snare. Vast numbers used to be caught in this way in England. In one season as many as thirty-one thousand and two hundred ducks have been sold in London alone from ten of these decoys near Walnfleet, in Lincolnshire. We trust that in this country a wise policy will protect our native waterfowl from any such wholesale destruction; and especially that during their breeding season they will be left unmolested.

In the present article we can only notice very briefly the Canadian species represented in the accompanying illustration. The most striking figure of the group is the Mallard (*Anas boschas*), the parent of the common domestic duck. In colour and plumage some of the domestic breeds very closely resemble the original wild stock, but in other respects are sadly degenerate. The duck of the

poultry yard is contented and happy enough truly, but inert and slow, waddling in its gait on land, while its wings, from disuse, can hardly raise it above the ground. The wild duck of the lake is quick and wary, full of life and spirit, and springs into the air when alarmed with a power of flight at once strong, rapid and enduring. Nothing can be more beautiful than the form, bearing, and plumage of the Mallard, especially when seen floating on its favorite element. Its length is about twenty-four inches. The general colour is too well known to need particular description. The bill is greenish yellow; irides hazel; the head and neck are a rich, shining green, abruptly terminated by a collar of white. The back is chestnut brown, deepening into black; the four central tail feathers are velvety black and curled up; the rest of the tail is of an ashy grey colour, edged with white. The greater wing-coverts are marked with a bold white bar, and tipped with velvety black, and the wings are beautifully coloured with shining purple, snow white, and velvet black. The colour of the female is mottled brown, the feathers bordered with a yellowish tinge.

The summer residence of this duck is in the northern latitudes. The female selects for her nest the most solitary recesses of the marsh, among reeds and rushes, where she lays from twelve to sixteen eggs of a greenish tinge. Occasionally, however, she seeks some sheltered woodland nook at a considerable distance from water, and there hatches her young, which for some time at least afterwards she nightly takes back to the same spot. Audubon mentions meeting on one occasion a duck thus leading her brood into the wood. His well-trained dog, at the master's bidding, brought all the young ones to him without hurting them; but the piteous behaviour of the bereaved parent moved the compassionate heart of the naturalist to restore the ducklings to their mother, and thus to make her, as he believed, a grateful and a happy duck. Instances are recorded in which the bird has so far departed from its usual habits as to build its nest in a tree, and several notices of a similar occurrence have recently appeared in the London *Field*. The Mallard is certainly a voracious bird, and by no means choice in its feeding. They are omnivorous; and in a domestic state, whatever of the wild spirit and activity they may have lost, they retain, at least, their enormous capacity of eating. On this account some farmers do not consider them profitable inmates of the poultry yard. They possess, however, many good qualities that well repay the trouble of keeping them. They are expert fly-catchers, and render excellent service by destroying vast numbers of insects, slugs, and other pests of the garden and fields.

The next species in our illustration is called, from the peculiar shape of its bill, the Shoveller Duck (*Spatula clypeata.*) This peculiarity in the bill, and the striking plumage of the bird, will always distinguish it from every other species and render its identification easy. It is liable, however, to considerable variety in the colour of its plumage. It is about twenty-two inches long. The bill, of a brownish black colour, is remarkably broad towards the extremity. The head and upper part of the neck are glossy green; the rest of the neck and breast white. The belly is reddish chestnut; the flanks are brownish yellow, pencilled transversely with black; between them and the vent is a white band. The back is dark brown; the wings are beautifully and somewhat variously colored with white, blue, green, and black. This bird frequents the muddy shores of lakes, and feeds on small worms and the larvæ of insects, which it sifts by the peculiar construction of its mandibles from the muddy water. Along the edge of each mandible is a row of comb-like teeth, closely fitting into each other, and forming a kind of sieve which admirably serves the purpose just mentioned. Each mandible is also grooved to receive the pectinated teeth opposite, when the bill is closed. Like the preceding species, the female usually builds her nest on the ground, in the secluded recesses of the marsh, concealed by reeds and rushes. She lays about ten or twelve rust-coloured eggs. The young are at first odd-looking, ungainly objects, the strangely developed bill appearing out of proportion to their downy little bodies.

Behind the Shoveller in the illustration, appears a somewhat smaller, less strikingly marked, but very elegant species, the American Widgeon, (*Mareca Americana*). A sober grey predominates in the plumage of this graceful bird, but beautifully varied with wavy lines, giving to the surface a softly shaded appearance, and rendering this species one of the most elegant of the tribe. The widgeon, or as it is frequently called, the Bald Pate, accompanies another well-known species, the Canvas-back Duck, so abundant in Chesapeake Bay. It is extremely fond of the tender roots of a particular aquatic plant on which the Canvas Back usually feeds, and for which the latter dives to the bottom of the water. But as the Widgeon never dives, its only means of procuring the coveted delicacy is to watch the movements of its bolder cousin, and, as the latter emerges after its plunge, to snatch the morsel from its beak, before it has well-recovered its breath or dashed the water from its eyes. On this account there is perpetual contention between the two species, the smaller of which, with the ordinary philosophy of thieves, considers discretion the better part of valour, and always retreats when attacked; only, however, to watch its opportunity for another petty raid on the very next occasion that presents itself. This species does not usually breed in the States, the southern portion of which it leaves in April, and appears in May along the coasts of Hudson's Bay. It is about twenty inches long. The bill is slate-coloured, with the nail black; the crown of the head is of a creamy white. Beneath this a band of glossy green, speckled with gold and purple, extends back from the eyes to the middle of the neck. The throat, chin, and sides of the neck are a dull, yellowish white, speckled with black; the belly is white; the breast and hinder part of the neck are of a bay tint, crossed with wavy lines of black; the back and scapulars, of of a darker hue, are also crossed with wavy lines; the lower part of the back is dusky.

The last species we shall notice is perhaps the most beautiful of our native ducks. It is called the Wood Duck (*Aix sponsa*), from its practice, not occasional, as in the case already mentioned, but habitual, of making its nest in the hollow of a tree, or sometimes even in a fork of the branches. It is also called the Summer Duck, especially in the adjacent States, because it remains and breeds there during the Summer season. This beautiful species is about nineteen inches in length. The bill is red, margined with black. The crown of the head and crest are of a rich glossy, bronzed green, ending in violet. A line of pure white extends from the upper bill over the eye; another white line meets this behind the eye, and both join their long pendent plumes with the green and violet ones. The cheek and sides of the upper part of the neck are violet; the chin, throat, and collar are white, the snowy band curving up in the form of a crescent. The white collar is bounded below with black. The breast is dark violet brown, marked on the forepart with minute triangular spots of white, increasing in size till they spread into the white of the belly: the side of the breast is bounded by a large crescent of white, and this again by a broader one of deep black. The flanks are marked by broad semi-circular lines of alternate black and white. The tail coverts are long, and hair-like at the sides, of a deep black blue glossed with green. The back is a dusky bronze, and the scalpulars are black. The tail is tapering, glossy green above, dusky below. The primaries, of a dusky silvery tinge, are tipped with violet blue; the secondaries are greenish blue, tipped with white. The legs and feet are yellowish red. This description, taken from Wilson, will give some idea of the singularly beautiful plumage of this remarkable bird. The specimen in the University Museum was very much damaged by moths. The nest of the Wood Duck contains about thirteen eggs, rather smaller than a hen's egg, perfectly oval, in colour of a creamy polished white, much resembling old ivory. The male is usually perched near while the female is laying or setting. When the young are fully hatched, the mother carries them in her beak, either by the back of the neck or the wing, from their elevated nest to the ground, and leads them off to the water. These birds do not occur in large flocks, but generally in pairs. They are easily domesticated, and become very tame, forming most beautiful objects to enliven the surface of ornamental waters in private grounds. The Indian frequently decorates the Calumet, or Pipe of Peace, with the skin from the Wood Duck's head, the most beautifully painted object that he could select in all his wide range of search.

We must not extend this notice by any description or even allusion to other species. Most of the family are migratory, and their movements are familiar harbingers of spring or warnings of approaching winter. The flight of the Mallard especially is swift, strong, and well sustained, its speed being estimated by Audubon as not less than a mile and a half in a minute, and, in long journeys, amounting to as much as one hundred and twenty miles in an hour. The instinct or faculty which guides their swift, extended, and unerring flight through the trackless air to distant regions, where both the temperature and means of subsistence are in accordance with their wants, is among the wonderful provisions of nature, which have ever called forth the admiration of the naturalist and the poet, and teach us much of the goodness of the universal Father, whose care and "tender mercies are over all his works." This lesson is pleasingly embodied in the beautiful lines of William Cullen Bryant, "to a waterfowl."

Whither, midst falling dew,
While glow the heavens with the last steps of day,
Far through their rosy depths dost thou pursue
Thy solitary way?

Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As, darkly painted on the crimson sky,
Thy figure floats along.

Seek'st thou the plashy brink
Of weedy lake, or marge of river wide;
Or where the rocking billows rise and sink
On the chafed ocean side?

There is a Power whose care
Teaches thy way along that pathless coast—
The desert and illimitable air—
Lone wandering, but not lost.

All day thy wings have fanned,
At that far height, the cold, thin atmosphere,
Yet stoop not, weary, to the welcome land
Though the dark night is near.

And soon that toil shall end;
Soon shalt thou find a summer home, and rest,
And scream among thy fellows; reeds shall bend
Soon o'er thy sheltered nest.

Thou'rt gone; the abyss of heaven
Hath swallowed up thy form; yet, on my heart
Deeply hath sunk the lesson thou hast given,
And shall not soon depart.

He who, from zone to zone
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

☞ The English sparrows which have taken so kindly to the squares and parks of New York, are now numerous in Newark and other neighbouring cities, and by their hardihood and cheerfulness under adverse circumstances, put to shame their cousins of American birth.

Stock Department.

Breathing.

A CONSTANT process of change is one of the essential and mysterious elements of life, even in its lower forms, and becomes more marked in the higher organizations. In man and those animals nearest to him in physical structure, this process of change is very active. Hourly and momentarily some portion of the material of the body is being removed, and its place supplied with new matter freshly endowed with vital properties. No part of the body remains the same for two days together, and it is not in any case a long period that is required to change completely every atom of our frame, so that, while through all the transformation our identity is wonderfully preserved, the component materials are altogether new. In consequence of this perpetual waste and repair arises the necessity of furnishing new matter to be converted into living tissues, and take the place of that which has been removed. This is effected in large measure by food, and the process of digestion, whereby so much of the food as is fit for nourishment becomes converted into blood; and out of this fluid the tissues of the body are continually renovated. But digestion is far from being the only function employed in this work of restoration. Indeed, while essential for the maintenance of life, it is intermittent in its operation, and may be suspended for a considerable time without serious inconvenience. There is another function concerned in the process, and which is constant, and cannot be interrupted, for many seconds, without endangering life. This is the function of Respiration, or Breathing. By the process of digestion fresh blood is formed; by that of breathing the impurities of the blood are continually removed, and fresh vivifying material added to it. The impurities are contracted by the blood being charged with effete or waste matter, and the office of breathing is to supply the vital fluid with a fresh element that, while it helps to build up the system, unites chemically with the waste material and removes it from the body. The agent by which this essential restoration is effected is the element oxygen, which plays so important a part throughout the material world. This element, it is scarcely necessary to inform the reader, is a component part of atmospheric air, the grand reservoir, so to speak, in which it is stored. It constitutes one-fifth of the atmosphere, the remaining four-fifths being composed of a comparatively inert substance, nitrogen, whose chief office, as it exists in the air, may be said, speaking generally, to be that of diluting the oxygen. One part of the process of breathing, then, is a mechanical agency, that of bringing the blood and air together. There is, besides, another part, the chemical effect resulting from the contact. Let us consider first the mechanism of respiration.

We have seen, in examining the circulation of the blood, how this fluid, after traversing the system, returns to the right side of the heart, and is thence sent into the lungs, where it is distributed in a very fine network of delicate tubes, or capillary vessels as they are called, the coats of which are extremely thin and permeable to air, though they do not allow the escape of their liquid contents. Now, the air apparatus of the lungs is, in its essential nature, nothing more than a membranous sac or bag, communicating by a narrow opening with the air, and having its walls or coat completely surrounded by these delicate and closely set blood vessels. There are, then, between the blood and the air, two membranes—the coat of the capillaries and that of the lung sac—but each is extremely thin, and offers no impediment to the passage of air or any gas through it. It is a law affecting all gases that they tend to diffuse equally, almost as if one were a vacuum to another, and a thin animal membrane does not at all interfere with this diffusion and intermixture. It may therefore be understood that the air and blood are brought into contact. Air passes through the sac containing it into the blood, and any vapour or gas from that fluid passes out into the air. All that is essential to the lung then is, as before mentioned, a plain sac, the interior of which air can enter, while blood vessels cover it on the other side. Such, the simplest form of lung, is represented in figure 1 of the accompanying diagram, where the external line indicates the boundary of the chest, the inner line the coat of the air sac or lung, and the dark line between them the layer of capillary blood vessels.

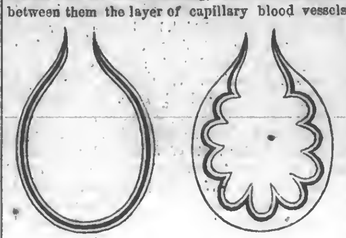


FIG. 1.

FIG. 2.

The further extension of the organ is mainly an economy of space, and is designed simply to increase the surface over which the air and blood can be brought together. Thus in figure 2 the air sac is turned in folds or scollops, whereby evidently the extent of surface is increased within the same boundary line. This is the actual form of lung in some *amphibia*, such as frogs. By still further deepening these folds a greater expanse of surface is obtained within the same external limits, as shown in figure 3. And again, by branching these deeper folds, we obtain a series of tubes ending each in a little *cul de sac*, or cell, as in figure 4. The last diagram represents the ramification of the air tubes and cells in the more complicated form of lungs, such as those of man and the higher animals. The simple principle is the same in all, a bag of air with blood vessels outside it; but in the more completely developed lungs an enormous extent of surface is secured, over which the blood and air are brought together.

Having stated the principle of the structure, let us now very briefly examine the details. We may take the human lung as the type, for the construction is precisely similar in that of the higher animals, and both the mechanism and the chemistry of the process are the same in all. Briefly to glance, then, at the anatomy of the lung, there are first the exter-

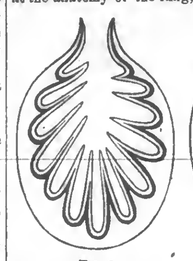


FIG. 3.

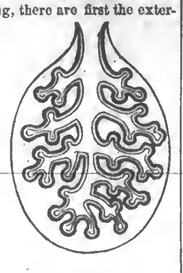


FIG. 4.

nal opening, and the tube leading from it. The latter is called the *trachœa*, or windpipe, and at its summit is placed an accessory organ, the *larynx*, or organ of voice. The trachœa is a membranous tube, kept open by a series of rings of gristle or cartilage. After it has entered the chest, the windpipe divides right and left into two main branches, and these again subdivide repeatedly, the minutest branches terminating in a cluster of small cells. These branches of the windpipe are called bronchial tubes, and the terminal sacs air cells. The cartilaginous rings are met with in the larger bronchial tubes, but throughout all of them is a highly elastic material, like that which forms the elastic coat of the arteries. This elastic tissue allows the tubes and cells to be distended, but as soon as the distending force is withdrawn causes them to collapse to their ordinary dimensions, expelling a portion of the contained air. If a lung be removed from the body after life has ceased, and inflated with air, the elasticity of its substance will, in the absence of all muscular power or any force from without, drive out again a portion of the air.

Now, we have seen that the blood is passing in a constant stream through the blood vessels of the lungs, constantly exposing, therefore, fresh fluid to the action of the air, which, as it receives the impurities of the blood, must become in turn impure. It is necessary, then, to change the air in the lungs, and this is effected on well-known mechanical principles. Take, for the sake of illustration, the simplest form of lung, the air sack, fig. 1. The chest itself is an enclosed cavity impervious to air; the lung within it an elastic bag freely communicating by an open orifice with the atmosphere. The pressure of this will necessarily fill out the internal sac, and press its sides close against the walls of the chest. Now, the chest is so constructed that its dimensions or capacity can be altered. When it is enlarged, more air will rush in; when it is diminished, a portion of the air will be expelled. This is just what takes place in ordinary breathing. The general shape of the chest is that of a hollow cone, with an arched or convex base. The ribs, placed obliquely, and muscles between them, compose the sides of the cone, while the base is formed by the diaphragm, a muscular and membranous partition, arching up, which divides the chest from the abdomen. The dimensions of the chest are altered by the elevation of the ribs, an action which increases the width of the cavity, and by the depression of the diaphragm, increasing its depth. These are muscular actions which in ordinary breathing are carried on under the influence of certain nerves without any effort of the will. This involuntary muscular action increasing the dimensions of the chest, causes air to rush in, and accomplishes the drawing in the breath, or inspiration, as it is called. As soon as the muscular action ceases, the elasticity of the lung comes into play, and, causing the tubes and cells to contract, drives out a portion of air, while, at the same time, the pressure of the external air keeps the walls of the chest still close against the boundaries of the lung. This part of the process is called expiration, and is, in ordinary breathing, entirely due to the elasticity of the lung. We can, however, by an effort of the will control these actions to a considerable extent. Expanding the chest to a greater degree, we can draw a deep breath; or contracting it by an effort, we expel the air more forcibly. We also fix the ribs,—hold the breath, as it is called,—for the purpose of making an extra exertion, especially with the arms; and we control these movements in the exercise of the voice.

The quantity of air that is taken in and expelled by the lungs in ordinary tranquil breathing varies somewhat in different individuals, but may be taken as an average in healthy adults at from twenty to twenty-five cubic inches with each act of breathing. The breathing capacity, or the largest amount of air that a person can, after a deep inspiration, expel from the lungs, also varies considerably, but maintains a curious relation to the height of the individual. Thus, the full capacity of a healthy person, five feet seven inches in height, is about 225 cubic inches. For every inch of height above this standard the capacity is increased on an average by eight cubic inches. This statement does not refer to the size of the chest, or the amount of air it will hold, but to the quantity that can be expelled by a forced expiration.

This brief and imperfect outline of the mechanism of respiration is all that our space or the scope of this journal will permit. The consideration of the chemical changes that take place in the process must be deferred to a future article.

The Dairy.

Hints on Dairy Matters.

IT is a fact too palpable for dispute, that the average of cows kept throughout the country, for milk production, is a low one. Various exceptions show what amount of milk a really good cow can produce, under proper selection, with abundant food of the right kind, and good care. With such examples as the latter for a standard, at which, in due time, we may arrive, if the proper means be taken to accomplish it, we can add twenty to fifty, or even a hundred per cent. to the production and profit of our cows, with little additional cost. We have known—we now know—men who derive an income from a single cow, in the sale of her milk, beyond the annual cost of her keeping, besides supplying their own families with milk and cream, and sometimes butter. The average of our milk dairies, as they are usually kept, is not over five hundred gallons a year; of the butter dairies one hundred and fifty pounds; of the cheese dairies, three hundred and fifty pounds per cow. These averages can be increased full one-half, in the simple items of selections of cows, more suitable and abundant food, and increased care in their keeping. The requirements to constitute a really good dairy may be somewhat more expensive, but much less so in proportion to the additional yields to be obtained from it, than in the loose and negligent way in which they are now managed. All these improvements we have suggested; and why not at once adopt and act upon them? A wise forecast will do so.

The establishment of cheese and butter factories has improved the quality of those articles, and cheapened their production. The tests of science, and accuracy of method, have been adopted in them, raising their flavor and quality to the highest standard, both at home and abroad. Knowing, thus, what has been accomplished in these particulars, we have every incentive to a still further improvement in the material—cows to furnish these most satisfactory results. Dairy factories, aside from improving the quality of their products, and increasing their prices over the old household way of making them, have accomplished a most beneficent and merciful mission, in relieving the wives and daughters of our dairymen of a routine of slavish and most wearing labor. The life of a household dairy-woman is toilsome in the extreme. Perpetual watchfulness, anxiety and work throughout the dairy season, frequently beyond her physical endurance, has been her destiny—over the cheese-tub, and shelf, the churn and butter-bowl—to say nothing of her labours in the milking yard, over the wash kettle, and scrubbing brush. No relaxation whatever is permitted. Necessity knows no law, nor mercy for those patient overworked solaces of the household. Even hired female labour is impatient of the task, and shirks it, except at the highest wages, and for a limited period.

We trust that dairy factories may soon become *the rule*, and the household thus relieved of an intolerable drudgery. In factories, the strength and ingenuity of man is employed almost solely, and the female assistance is so mitigated in its toil, as to be easily and cheerfully accomplished. In the spirit of drowsy Sancho, who invoked blessings on the man who invented sleep, we utter unbounded thanks to the benign brain of him who contrived the cheese and butter factory!

Every farmer, every owner of a cow in the land, should take a pride and a pleasure in having her the best, most useful of her kind. There is no more comely creature living than a fine, well developed cow or heifer, a steer or an ox; and the whole majesty of the bovine race stands forth in a well-bred, stately bull, of an established approved breed. No higher ornament to the farm, the park, the paddock or the stall, can be found than in them. Their presence is ever a pleasure to those who appreciate their value, whether in the humbler walks of rural life, or enjoying the highest social or public distinctions.—*Allen's American Cattle.*

New and Old Rennet---Curing it.

IN answer to an inquiry on the subject, Mr. Willard says, in the *Utica Herald*:

We do not believe new rennet to be so good for cheese-making as old rennet. We have experimented a great deal, first and last, with rennet in the manufacture of cheese, and we have invariably found old rennet, properly selected and cured, of more strength—that is going further in coagulating milk than new rennets. Again, new rennets are apt to produce a more active fermentation of the cheese while curing, causing it to huff or swell, and no cheese that huffs but is more or less injured in flavor. There is great difference in the power of different rennets to coagulate milk, not well understood or even to be fully explained by the chemists. Dr. Voelcker, the celebrated English chemist, after making numerous analyses of rennet, says the precise nature of rennet and its action on milk is yet a mystery, and that we have not even a name for its coagulating principle. We know from experiment that a superabundance of salt in curing rennet neutralizes in part the coagulating principle; hence, in curing rennet, no more salt should be used than is absolutely necessary to keep the skins from tainting. We have no doubt but that rennets which often prove weak in strength have been injured by over-salting, the soda in the salt not only neutralizing the active principle in the rennet, but having the same effect upon the lactic acid in the milk.

In saving rennet, we are of the opinion that the Bavarian method will prove of great value to our dairymen. We have adopted this method of curing in our own dairy, and we find it not only of less trouble, but the skins are more perfectly cured and more easily packed away than when salted in the usual way. We have heretofore explained in the *Herald* the manner in which rennet is cured under the Bavarian method, but as some may have overlooked our remarks we repeat again. The curing consists in simply turning out the contents of the skin, wiping off all specks or dirt with a cloth, and then blowing up the skins or filling them with air like a bladder. The ends are tied with a string, and a little salt applied to this part only. The skins treated in this way soon dry out perfectly, and are as sweet and clean as can be desired. If there is any truth in the assumption that salt neutralizes the action of the rennet, then rennets treated on the Bavarian plan must be much more effective than those cured in the old way. Again, when the rennets on the Bavarian plan are dry, the air may be expelled and the skins packed away in small space, and can be kept clear of bugs. The trouble with salted rennets is that the salt in wet weather accumulates dampness, and if particular care is not taken to keep them in a dry place, they drip, and consequently lose strength. Rennets saved on the Bavarian plan of curing, are said to be stronger as well as sweeter than any other. We can not say positively, from our own experience, that this is so, but we are testing the method, and shall be able in time to give the result. So far we approve of the system, and recommend it to the attention of dairymen.

To Make Cows Give Milk.

A writer who says his cow gives all the milk that is wanted in a family of eight persons, and from which was made two hundred and sixty pounds of butter in the year, gives the following as his treatment. He says: "If you desire to get a large yield of rich milk, give your cow, three times a day, water slightly warm, slightly salted, in which bran has been stirred at the rate of one quart to two gallons of water. You will find, if you have not found this by daily practice, that your cow will gain twenty-five per cent. immediately under the effect of it, and she will become so attached to the diet as to refuse to drink clear water unless very thirsty, but this mess she will drink almost any time, and ask for more. The amount of this drink is an ordinary water pail full each time, morning, noon and night. Your animal will then do her best at discounting the lacteal. Four hundred pounds of butter are often obtained from good stock, and instances are mentioned where the yield was even at a higher figure."—*Wisconsin Farmer.*

How to Prevent Badly Weaned Calves from Sucking.

IF you or any of your readers have been pestered with the contrary wilfulness and persistence of a badly weaned calf, as I have been for the past twelve months, they will be glad to know that a common snaffle bit will cure the beast most effectually. A colored man, George Daniels, who has charge of my stock, claims that he "is de first chap who invented dat dar," and it has certainly answered the purpose with a two-year old heifer who has given George a "site of trouble" for the past year. He tied a strong twine-string to the bit, and thus fastened it on her head as a bridle would be put on any animal. It does not interfere materially with the feeding of the beast, and I have no doubt will be an easy and thorough remedy for the trouble, either with calves or with cows disposed to milk themselves.—*Cor. Country Gentleman.*

How Country Folks Cheat City Folks.

IT is universally supposed that country farmers are an honest race; but a *city retail butter dealer* makes a grievous complaint as follows:

"It does seem to me as though the dairymen were determined to add in every possible way to the weight of their butter, as they manage in more than one way to defraud the retail dealer. I consider it sharp practice to overload butter with salt; also to put from a sprinkle to a half-pound in the bottom of the tub, and from three-quarters to a pound and a half on the top of the cloth covering the butter.

"It also appears as though the maker forced all the water in the tub with the butter that was possible.

"In fact, to sum up, butter-makers appear to think they have a good thing of it selling salt rags and water at the price of butter. My advice to producers and dealers is, to sort colors; do not put so much salt between layers, and in particular keep their kerosene in some other place than where they pack their butter."

☞ A woman in Brooklyn purchased a quart of milk, and found a small fish swimming in it. The milk-man stated he thought the cow must have swallowed the fish.

Veterinary Department.

Injuries and Diseases of the Horse's Foot.

AT all times, but more particularly during the dry, hot months of summer, the foot of the horse is very liable to injury and disease. When the roads are dry and hard, the jar and concussion occasioned by fast travelling is very great, the hoof also becomes hard and brittle, and frequently splits or cracks, and owing also to small rolling stones the sole is frequently bruised, and these injuries, when neglected, often extend and give rise to more serious disorders. When horses are used on the farm or on soft roads, the feet are not very liable to concussion, but when they are driven a distance upon a hard road, and, perhaps, with shoes that are pressing upon the soles, then the lamina, or sensitive parts become bruised and congested, and the horse will go slightly lame. At this season, many horses are lamed in the above manner. The lameness may be produced after one drive. Frequently horses are purchased in the country and then brought to town, when they are driven for a few days on our hard roads and streets without their feet being attended to in the least, and the shoes lying upon the sole; as a consequence of the jar and concussion, the horse will begin to stumble and falter in his action, which is most observable when he goes out of a morning, or after standing some time. What we refer to is to be met with mostly in the front feet, because the fore feet are raised higher from the ground, and are brought down with much greater force, therefore they suffer more frequently than the hind feet. From this continued buttering, the laminæ are strained and congested, and the horse goes lame, especially if he carries any weight upon his back. When standing, he will keep shifting his feet; the heels will be hot, and the fetlocks somewhat puffy, and in some instances the legs will swell upwards towards the knee. The foot taken up and the sole tapped with a hammer will at once cause him to evince pain, shown by suddenly jerking the foot. When these symptoms are observed, the horse should be at once laid off work for a few days; the shoes should be removed, and the feet cooled by means of wet cloths wound round the feet, or by keeping him standing for several hours daily in moistened clay; he should also have a mild dose of physic, and be restricted to a cooling diet, as bran mash, or, when it can be procured, green clover or vetches. In the course of eight or ten days, he may be re-shod, and if he evinces the least tenderness leather shoes should be applied, and also a stopping of tar and tow. By so doing, the sole is kept soft and moist, and the jar and concussion are to a great extent removed.

The Causes of Disease.

DARKNESS AND DIRT.

SOLAR light consists of luminous, chemical and calorific rays, and appears to be almost as important for the well-being of animal as of vegetable life. With what unmistakeable satisfaction do all the domestic animals bask themselves in the sunshine! In its brightness and warmth all creatures seem to revel. Yet horses in coal pits and mines, deprived of its cheering influences, if otherwise well managed, do not seem specially liable to any particular diseases. Young animals deprived of sunlight probably suffer more notably than adults, are apt to become puny, listless, and liable to scrofulous disorders. Human beings living in dark dwellings, underneath high walls where sunlight seldom penetrates, become the parents of an unusually large proportion of dumb, blind, and idiotic children. Amongst pigs and poultry we have observed the depressing influences of dark abodes. In covered yards, shut out from the direct rays of the sun, cattle do not thrive so well as where they can bask themselves in its cheering rays. During several winters we have had under observation, in one of the midland counties of England, two contiguous yards of nearly equal size, and capable of holding comfortably eight or nine two-year old Shorthorns. The inner is entirely covered with a lofty glass and slated roof; airy, but not liable to draughts. The outer has a deep, commodious shed, continuous with the roof of the covered yard. Both yards are similarly supplied with water. Successive lots of Shorthorns during seven consecutive winters have been fed exactly alike in each yard. In both they thrive remarkably well; but the occupants of the outer yard, albeit they are further from the barn-door, invariably come out in spring with better coats and rather more condition; and this we can ascribe only to the fact that they enjoy a full share of sunshine, from which their fellows in the inner yard are almost entirely shut out.

Light, when too abundant or dazzling, is trying to the eyes. The bright glare of the sun's rays, when reflected from white cliffs, sandy flats, snow, or even from white lime-stone roads, irritates the eye, and occasionally gives rise to blindness. Some horsemen object to brightly lighted stables, on the plea that the animals are kept more upon the alert, do not compose themselves, and cannot rest well. But in a stable or kennel too much light is preferable to too little. By curtains, blinds, or other devices, any excess can easily be excluded. Deficiencies of light usually prove a cloak to filth. A dark stable is seldom clean, fresh or airy. Solid or liquid excreta are apt to accumulate, contaminating the air; dust and cobwebs escape observation; the atmosphere, if not absolutely foul is generally frouzy. Darkness being favourable to repose, a dim light is however desirable for fattening animals. Thus feeding cattle ought to be kept quiet, disturbed only at meal times, and placed in comfortable, rather dark pens. Poultry cramming for the table, for a fortnight before being finished off are cooped up in dark pens, to which light is introduced only three or four times daily at the regular hours of feeding.—*North British Agriculturist.*

DISEASE OF THE HOOF IN CATTLE.—Mr. Robert McLaren, Secretary of the South Renfrew Agricultural Society, sends the following communication:—"There are some of the cattle in this county affected with foot disease, and the people are at a loss as to the proper method of treatment. The disease appears to begin at the heel of the hind foot and follows on like a tube to the toe, where the foot begins to rot, and threatens the loss of the hoof. Any information you may be enabled to give in your next issue of the CANADA FARMER relative to the disease, and the best treatment thereof, will be thankfully received by your readers in this part.

NOTE BY ED. C. F.—The disease of the foot above referred to, is generally the result of carelessness and filth. Gravel or sand accumulates in the clefts of the hoof, which sets up considerable irritation, followed by inflammation and suppuration so that pipes form in various directions. The treatment consists in thoroughly cleansing the parts with soap and water, and also removing any detached horn, and then dress with a mild caustic, as chloride of antimony; after which the cleft should be filled with a stopping of tar and tow, which soon brings on a healthy action.

Correspondence

Crops in England.

To the Editor of THE CANADA FARMER:

SIR,—I have now been just three weeks in England, and have taken a passing glance at agricultural matters from Lincolnshire through the Midland Counties to the English Channel, which separates this country from France. As yet I have not had opportunity of examining fully any district of country, and can only furnish you with a few general remarks.

The spring here has opened earlier than usual, accompanied by a high temperature, and, consequently, notwithstanding the want of rain in some parts, all kinds of crops are forward and generally promising. Showers having recently fallen, the appearance of this picturesque and highly-cultivated district resembles a well-kept garden, which indeed is more or less the appearance of the country generally. When I left Portland on the 25th of April, there were no signs, to the casual observer, of returning vegetable life, after, perhaps, one of the coldest winters ever experienced in North America. On the twelfth day the picturesque hills of Ireland became visible; the fields being covered by a thick mantle of the richest green. The next day brought us to Liverpool, with its forests of masts; and although Lancashire is by no means distinguished for natural beauty and rural prospects, I felt deeply impressed by the loveliness of the landscape, and the forwardness of the crops. Orchards were blooming profusely, the hawthorn hedges in full leaf, and, in places, rich with flowers; while in the gardens various kinds of roses, laburnums, and numerous other flowering shrubs and plants, were in full perfection—broccoli and asparagus were actually going out of season, and cabbage (planted in autumn) well turned into head. In a few days afterwards, I found the fruit blossoms in the middle and south of England fading away, peas in full flower, and early varieties podding, some almost ready to gather. What a wonderful influence have the Gulf Stream and the insular position of the British Islands on their climate and natural productions.

Wheat, on the whole, must be considered as promising, although I saw some in Lancashire and Cheshire, apparently on wet, heavy land, wanting plant, and of a yellowish colour. Spring grain is making great progress since the rains, but the grass, in consequence of the late dry weather, is backward, compared with other crops; it is now, however, progressing, and in meadows manured and otherwise well-managed, the yield will most probably be heavy. Turnips, mangels, &c., are sown early in this country, and are now coming up. All crops are generally drilled and carefully hoed, giving a clean and nicely finished appearance. In this section of country hops are extensively cultivated, and they are unusually forward, more so, I think, than I ever saw them before. The vines, almost without exception, are exceedingly vigorous, and the management being of so careful and liberal a character, a heavy crop is being reasonably anticipated. The aphis has already made its appearance in some situations, and with it the "lady-bird," its natural enemy. A large crop would certainly be accompanied by low prices. I think that I shall be able to offer our Canadian hop-growers some useful suggestions. So strong and forward is this plant that I have already seen it, in some places, over the tops of the poles.

I have attended several markets and fairs, and had much intercourse with farmers, laborers, &c. The condition of English agriculture is, I should say, on the whole, prosperous. The cattle plague in some counties (particularly Cheshire) was very disastrous. It has now ceased, and cattle this spring are permitted to be brought to markets and fairs, as formerly. Beef and mutton, though somewhat lower, continue to maintain, for good qualities at least, high prices: from 4s 6d to 5s per stone (8 lbs), dead weight. Lean sheep meet with a very heavy sale, owing to the extremely large supply and hitherto want of grass. For several years past, especially when grain was low, a large extent of arable land was converted into pasture, thereby greatly increasing the amount of sheep and cattle. If this had not been the case, the effects of the late cattle plague would have been still greater on prices. Some farmers, I find, now that the price of wheat is high, seem inclined to put a portion of their pasturage under grain culture. A good wheat crop in Europe and America this year would so reduce prices as to remove the motive for such a change of practice. It takes many years in England, say from 10 to 25, for poor arable land to be converted into a good, permanent pasture, a change involving not only time, but a considerable pecuniary outlay, in the way of draining, seeds, and manures. The best pastures, sustaining seven or eight large sheep per acre during a large portion of the year, have been in that condition for centuries. The older it is said they are, the better; hence the reluctance manifested against ploughing them up.

I shall be in London to-morrow to see the great horse show in the Agricultural Hall, from whence I proceed to the Bath and West of England Exhibition at Falmouth, of which I hope to send you some particulars in my next.

GEO. BUCKLAND.

Tonbridge, Kent, May 29th, 1868.

NOTE BY ED. C. F.—The foregoing letter only came to hand just as we were going to press with the last number, and therefore too late for an earlier insertion.

Circular to the Agricultural Societies.

TO THE OFFICERS AND MEMBERS OF THE AGRICULTURAL SOCIETIES OF ONTARIO.

GENTLEMEN,—Permit me to remind you of the purport of a circular issued early in the year by the Hon. the Commissioner of Agriculture, having among other matters reference to the formation of an industrial museum in the Parliament Buildings at Toronto.

As the season is approaching when grains and other agricultural productions will reach maturity, I trust that the Agricultural Societies of the Province will lend all the practical aid in their power towards the realization of so interesting and important an object. It must be obvious on the least reflection that the successful carrying out of such a project must, in a great degree, depend on the cordial co-operation of our farmers and mechanics, who have been earnestly requested to furnish characteristic specimens of their various productions.

I therefore trust that, before the termination of the present year, the Department will be put in possession of such specimens of our fields, gardens, and workshops as will indicate in a creditable manner our industrial and social progress. I may just remind our agricultural friends that grain in the *straw*, whenever practicable, is very desirable.

During the short period I have been in England, the mention of this object has met with approval from several influential parties, and I hope to be able to collect material here, mostly free of cost, that will be found of much practical utility. The mere attempt to carry out an object like this is regarded here as unmistakingly indicating a desire for sound and industrial progress.

In the pleasing hope that you will give this project your hearty support, and likewise our agricultural, mechanical, and manufacturing interests generally

I remain,
Gentlemen,
Your obedient servant,
GEO. BUCKLAND,
Secy. Bureau of Agriculture, Ont.

London, May 30th, 1868.

Railway Gardens.

To the Editor of THE CANADA FARMER:

SIR,—In your issue of the 15th inst., I read with much pleasure your article on Railway Gardens, and would beg leave to state that the little oases on this railway are more numerous than your article would lead one to suppose; also, that the chief officers are very anxious that, as far as possible, their agents and employés generally should do all they can to beautify their surroundings at stations, and also help them to the extent of placing fences around, and filling in land if necessary, leaving their men to lay out and ornament, the expense of which they kindly allow them (the agents) to pay out of their pockets. The Managing Director, for one or two years, on the Toronto and Montreal District, gave an annual premium for the best laid-out and kept garden, the prize being always taken by the one at Brockville, which is really most beautifully kept, and a great credit to the persons in charge. There are also very fine gardens at Cornwall, Belleville, Newcastle, Whitby, and several other places on the Central Division, and I believe the wish is general among the agents to do all they can in this direction, but in many cases the obstacles to be overcome are great. I sincerly endorse the idea that it would be a good investment for the Company to lay out and beautify their station grounds, as they would thereby attract more travel. I have had persons assure me they have chosen the Grand Trunk Railway from Detroit east mainly to see the gardens at Kingston and Brockville; and when the train draws up at these stations a general exclamation of delight is at once manifest, and passengers rush to view them, much as I have seen tourists leave the table on a Mississippi steamer to view the celebrated Maiden's Rock. Many of these stations have fine fountains, which add so very much to their attractions that I am in hopes your excellent article may induce the Company to place them at all water stations, and especially here, and that all who can, and particularly railway men, may adorn as far as possible their waste places.

G. A. OXNARD.

ENQUIRY.—A subscriber from Addington County sends an "enquiry," which has been handed to the proper authority and will be attended to.

OIL FOR INSECTS.—A correspondent cautions all gardeners against the use of diluted coal oil as a remedy for insects. He tried the plan recommended in the *Gardener's Monthly*, and copied from that journal in our last issue, and found the application destructive to all the plants on which it was used.

SPRING-BEETLE.—Mr. A. T. Walbridge, of Whitby, sends a specimen of one of our larger spring-beetles, and wishes to know its name. The specimen sent is the *Elater* (or *Alaus*) *oculatus*. The name spring-beetle is given to the genus from their power of throwing themselves up with a jerk when laid on their back, and this species is called *oculatus* (eyed) from the eye-like spots on its thorax.

WELLS.—Mr. J. Ketchum, of Brighton, Ontario, writes:—In your issue of 15th inst., I notice an enquiry from a "Colborne correspondent" for information as to whether there is not a more economical way of obtaining water from below the ground than the old-fashioned way of digging and walling. I think there *is* decidedly a much cheaper and easier method; and in California, where I have seen the method fully tested and generally used, it gives complete satisfaction and is universally conceded to be preferable by far to the "old way." In fact it can be used, particularly for extreme depths, where water could not be obtained at all by digging. I refer to the plan of boring and piping, using 2 or 4 inch tubes. If your correspondent will address or call on me, I shall be happy to give all the information I can on the subject, with regard to tools, mode of operation, &c.

CANADIAN FLORA.—A "subscriber" asks:—Would you through your valuable columns inform me what work on Canadian plants would be best for a person intending to make a botanical collection?

ANS.—The best book for the purpose at present published is the *Manual of Botany for the Northern States of America*, by Professor Asa Gray. This work, though not intended to give the Canadian Flora, contains an account of most of our plants, and is the only work, as far as we know, that will enable the young naturalist in this country to determine the names of the plants he may meet with. A small work by the same author, entitled, "*How Plants Grow*," will be found useful for beginners, and this also contains a large portion of the Canadian Flora.

EMIGRANT'S GUIDE.—"A Constant Reader" asks: "1st. Are there any books giving reliable information as to the cost of an outfit for the backwoods, with list of necessary articles? 2nd. Is it possible for a comparative greenhorn to obtain information that will enable him to judge properly of land and timber? If so, where can he get it?"

ANS.—We do not know of any complete Emigrant's Guide for Canada; and we think that such a work by a competent hand would be of inestimable value. Our correspondent may find some information that will be of service to him in the "*Canada Emigration Gazette*," published at Quebec, which can be obtained, free of charge, from A. C. Buchanan, Esq., Chief Emigration Agent, Quebec, and probably from other Emigration Agents in this Province. There is also a small work recently published by the Rev. W. Fraser, of Kincardine, entitled the "*Emigrant's Guide, or Sketches in Canada*," which contains many useful hints. Maps of the Free Grant lands are supplied by the Crown Land Department, and information respecting them can be obtained from the same quarter. But we would caution any one who is altogether unacquainted with "land and timber" not to take up land till he has practically acquired some little knowledge of these matters by a few lessons in the "Bush," beyond the mere study of books. A year's residence with an old settler would be a good school.

The Canada Farmer.

TORONTO, CANADA, JULY 1, 1868.

American Pomology.

WE have just examined with some care, and with no little interest, the recently published proceedings of the Eleventh Session of the American Pomological Society, held at [St. Louis, in September last. This goodly volume, of 264 pages octavo, contains a vast amount of information respecting the present state of the important branch of rural industry to which it relates. The Society above-named has for its objects, adjudication of the merits of new fruits, identification of varieties, establishment of a common nomenclature, dissemination of useful pomological information, and the promotion generally of fruit-growing. It meets biennially, and its transactions consist chiefly of essays and discussions on points connected with fruit culture. On the occasion to which the report in question relates, papers were read on the general subject of pomology, on diseases of the pear, on packing and marketing fruit, on diseases of the grape, on plant diseases, and on insect enemies of fruit. Free discussion was had in reference to the subjects just enumerated, also in reference to numerous varieties of fruit; reports were also given from different parts of the United States and Canada respecting the condition and prospects of fruit-culture.

Some idea of the work done by the Society, also of the progress of pomology on this continent, may be formed by looking at the following facts: The Society's catalogue now contains the names of five hundred and sixty-one fruits, viz.: 178 apples, 122 pears, 43 cherries, 55 peaches, 6 nectarines, 11 apricots, 33 plums, 3 quinces, 18 native grapes, 22 foreign grapes, 18 currants, 13 gooseberries, 12 raspberries, 2 blackberries, and 25 strawberries. Its list of rejected varieties is even larger than its catalogue of recommended varieties, containing no fewer than six hundred and twenty-five kinds, viz.: 126 apples, 351 pears, 5 apricots, 32 cherries, 2 grapes, 31 plums, 3 raspberries, and 75 strawberries, making a total of *one thousand one hundred and eighty-six varieties of fruit*, on which the Society has put the stamp of its approval or disapproval. Each of these varieties has been the subject of free and sometimes protracted discussion, and the decision come to has been arrived at by an open vote on the part of the members who have participated in, or listened to the discussions. It is especially indicative of pomological progress, that instead of only fifty-four approved varieties of fruit, which comprised the Society's list in 1848, there are now the large number of five hundred and sixty-one. This evidence of advance is the more striking when it is considered that the standard of excellence has not been lowered but raised. The President, Hon. Marshall P. Wilder, in his opening address laid down very clearly the requisites in a tree or fruit, for obtaining favour with the Society. A good tree must possess, *first*, health, or freedom from constitutional disease; *second*, hardiness, or the power of resisting extremes of heat, cold and drought; *third*, fertility or productiveness of fruit; *fourth*, persistency of fruit, or power of adhering to the tree; *fifth*, vigour of growth, or productiveness of wood; *sixth*, persistency of foliage; and *seventh*, a good habit of growth. Those which unite these characteristics in the highest degree are most valuable. A good fruit must be, *first*, of the best quality; *second*, it must possess durability, or the property of remaining sound after being gathered; *third*, size; *fourth*, colour; *fifth*, form. It is conclusive evidence of the vast capabilities of the American continent as a fruit region, that between five and six hundred trees and fruits have stood the test of the foregoing rules, while among the still greater number of ostracised sorts there are doubtless not a few of a high order of merit, though they are eclipsed by others that are still better than they.

The Society's catalogue of approved fruits is an interesting and useful study. Certain varieties do well almost everywhere, while others have only a limited range. Thus among apples the Red Astracan, Baldwin, Early Harvest, Fall Pippin, Fameuse, Gravenstein, Yellow Bough, Maiden's Blush, Northern Spy, Rambo, Rhode Island Greening, Roxbury Russet and Wine Sap, have won golden opinions North, South, East and West. The apple has been well designated "King of Fruits." It has been also said of it that it "belts the year." A farm that has on it an orchard comprising such varieties as those just enumerated is well enough supplied with fruit, though it refused to grow any other. Pears are perhaps less cosmopolitan than apples, yet the following are spoken well of in most parts of the United States and Canada; Bartlett, Belle Lucrative, Beurre d'Anjou, Flemish Beauty, Louise Bonne de Jersey, Seckel, Tyson, Vicar of Winkfield, Winter Nelis; and he who can grow these, or the half of them, is well off. Cherries are coy, and beyond the Kentish, May Duke, and Morello, there seems to be none that can be called universal favourites. Peaches, Nectarines, and Apricots are of course limited to sunny spots and favoured latitudes. Among plums, Coe's Golden Drop, Green Gage, Imperial Gage, Lombard, Smith's Orleans, and Washington, seem to have the widest popularity, and if curculio and black knot would only let these alone, we need hardly sigh for more. Of hardy grapes there are Concord, Delaware, Hartford Prolific, and Diana, which are widely diffused and approved. There is only one universal gooseberry, the Houghton. Hovey's Seedling, Triomphe de

Gand, and Wilson's Albany, are the favourite strawberries. When you add to these varieties, which appear to do well anywhere and everywhere, those which succeed particularly well in certain localities, you have a pretty respectable collection of fruits, one of which a comparatively young country has reason to be proud and one with which it may well be content and thankful.

That much enthusiasm exists in the United States and Canada in connection with pomology there are many encouraging proofs. We link our own Dominion with the Great Republic in this remark, because the efforts of Canadian fruit growers, and especially Mr. Arnold's experiments in hybridizing, received honourable mention at the St.Louis meeting, and there seems a very pleasing disposition to work hand in hand, oblivious of national distinctions, in the promotion of fruit culture. This branch of horticulture is yet in its infancy, and although most valuable discoveries and improvements have been made, it is by no means visionary to expect that they may yet be superseded and eclipsed. Many shrewd, intelligent, experienced and persevering experimenters are at work, and we believe they will not labour in vain. Such societies as the one whose proceedings have furnished the subject of this article, are doing vast good, and deserve all encouragement. Our own Fruit Growers' Association, though more limited in its field of operations, has already laid the country under a debt of gratitude, and will doubtless in coming years increase the obligation. We sincerely wish it, and all similar associations, the success they so richly merit.

Quebec Provincial Exhibition.

It is officially announced that the Agricultural and Industrial Exhibition for "Lower Canada," as it is still called in the announcement from which we quote, will be held in Montreal in September next, during the week commencing on Monday, the 14th, that is to say, the week previous to that in which the Ontario Provincial Exhibition will be held in Hamilton. This arrangement accommodates those visitors and exhibitors who may wish to compete or be present on both occasions. A very full and liberal prize list is published, and every arrangement seems to be made with a view of rendering the exhibition worthy of the Province. Parties intending to exhibit must make their entries in the Agricultural Department on or before the 22nd of August, and in the Industrial Department not later than the 15th of September. The programme for the Exhibition week is as follows:

Monday, Sept 14th, will be devoted to the receiving of articles for exhibition, and their proper arrangement. None but officers and members of the association, judges, exhibitors, and necessary attendants will be admitted.

Tuesday, Sept. 15th. The judges will meet in the committee room at 10 a. m., and will commence their duties as soon as possible afterwards. As soon as they have made their awards, they will report to the Secretary. Admission, 50c.

Wednesday, 16th. The judges of the various classes will complete their awards, and will place all the prize tickets if possible. Admission, 25c.

Thursday, 17th. The public will be admitted this day on payment of 25cts by each person, each time of entering.

Friday 18th. *The annual meeting of the Directors of the Association will take place at 10 a.m. in the committee room.*

Saturday, 19th. The Treasurer will commence paying the premiums at 9 a. m.

All protests must be sent to the Secretary before 10 a.m. on Thursday, the 17th September.

The prize list contains some new features, among them the addition of a silver and bronze medal, to accompany the first and second prizes in the more important classes of stock. This we think a commendable example, as it supplies the successful competitor with a permanent memorial of superiority. These medals, it is announced, will be publicly distributed by his Excellency, the Governor of the Province, on Thursday, the 17th September. Another noticeable deviation from former prize lists, is in the class of horses, in which the breeds are more distinctly specified. Thus the sections are—1, Clyde; 2, Percherons; 3, Suffolk; 4, Thorough-bred Stallions; 5, Brood Mare and Foal; 6, Heavy Draught Stallion, (1300 lbs and over); 7, Middle Draught Stallion, weighing 1200 lbs. and over; 8, Light Draught Stallion, weighing 900 lbs and over; 9, Three year old Stallion of any breed; 10, Brood Mare and Foal, Heavy Draught; 11, Brood Mare and Foal, Light Draught; 12, Three year old Filly, any Breed; 13, Pair of Draught Horses; 14, Pair of matched Carriage Horses; 15, Saddle Horses. We expect the above classification will be open to some criticism amongst horse fanciers, and will elicit considerable differences of opinion.

The industrial building will be fitted up for the reception of the industrial department, as in 1865. The skating rink will receive the Horticultural Department, under the special care of the Montreal Horticultural Society. The ground selected for the cattle sheds are the same as last exhibition. The usual half fare arrangements have been secured from the various railroad and steamboat companies.

Illinois State Fair.

The Illinois State Fair is to be held the present year from Sept. 21st to 26th, at Quincy, the same place as last year, one of the most beautiful and thriving cities in the Mississippi valley. The grounds and fixtures used last year were found very commodious and convenient. It is intended to enlarge and improve the accommodation, so as to afford every facility possible for intending exhibitors. Large additions have recently been made to the hotel capacity of Quincy, and it is considered that no place in the West, of its size, is better prepared to entertain a large number of visitors. There are two features in the coming Illinois Exhibition which we note with much pleasure. The first is, the prohibition of horse racing, and all its concomitants. Concerning this great and growing evil in connection with Agricultural Fairs in the United States, the Executive Board of the Illinois State Agricultural Society have taken most praiseworthy action, and we hope their example will be extensively copied. Let the New England Society, especially, blush at the idea of being outdone in moral excellence by the Prairie State. We quote from the Circular announcing the Exhibition of 1868, so much as refers to this matter, deeming it a capital epitome of the reasons why such a stand should be taken universally:

"The Executive Board, in obedience to their own convictions, have resolved to permit, as part of the exhibition, nothing having a tendency to lower the proper moral standard of Agricultural Fairs; and they are expressly determined to exclude from the grounds horse-racing and its usual accompaniments, jockeyism and gambling. Let their position not be misapprehended. This action is dictated not by any feeling adverse to the horse interest, the importance of which they well understand and are glad to acknowledge, but by a just regard to the legitimate aims of agricultural fairs, as well as to deliver the interest itself from the injury inflicted upon it by a certain professional class, who, claiming to be its especial champions, are its worst enemies. The legitimate breeder of horses of every class will find in the list of premiums unusual encouragement, and in the discretion given to committees, ample opportunity for the display of action, and other tests of the valuable qualities of his favorites; but those GIPSIES OF THE TURF "*who prowl about*" *the Race Course and County Fair speed-rings "for human prey,*" are not expected to participate as exhibitors. Having taken this position, the Board expect to be sustained in it by all good citizens who feel an interest in the true progress of agriculture and industry, and particularly by those whose specialty is rearing good, serviceable horses."

Another noteworthy feature in the Illinois arrangements, is the provision of suitable camping-ground, for those who prefer that economical and independent mode of self-entertainment during the fair. The expense of hotel accommodation, and the certain discomfort consequent on the crowded state of the hotels, are considerations that deter many from attending Exhibitions who would otherwise do so. At a season of the year when the weather is enjoyable, and the nights are warm, there is no danger to health in camping out, and if proper arrangements and regulations are made, we see not why the provision would not tend to secure both a larger and longer attendance on such occasions. Complaint has been made in connection with our own Provincial Fairs that horse boxes and cattle stalls have been occupied as bed-rooms and boarding-houses, to the exclusion of their legitimate occupants. What has been done irregularly and stealthily, might, we think, be advantageously done under official sanction and superintendence. In fact, we see no reason why a range of sheds might not be put up under the direction of the Board, and apartments let during the Fair at a moderate rental. It requires a considerable outlay to pay travelling, hotel, ticket, and other expenses at such times. Our backwoods farmers especially, who are not flush of money, but who, more than any other class, would be benefited by attendance at the Provincial Exhibition, would be allured by such an arrangement. They are accustomed to rough it in the bush, and would think nothing of camping out for two or three nights, if facilities were afforded for their doing so. We commend this feature in the Illinois arrangements to the attention of those with whom it rests to make preparation for our own approaching Exhibition.

The Season.

As elsewhere chronicled, in our article on the month, we have pleasure in putting on record that the season continues to be one of the most favourable within the recollection of that sapient and venerable individual "the oldest inhabitant," and that all the accounts which reach us from various parts in reference to the crops are of the most satisfactory nature. So far everything augurs well for a year of plenty, and consequently a year of prosperity.

NEW YORK AGRICULTURAL EXHIBITION.—The New York State Fair will be held in the week commencing Sept. 29th, not 19th, as by a typographical error was stated in our last.

ROBERTS' HAY ELEVATOR.—An advertisement of this Hay elevator appeared in our last issue, but was not sent in time for any editorial notice. We now draw attention to the new implement which, from a personal examination and testimony in its favour, we believe to be at once simple and efficient. It is manufactured by T. Wrong & Co., 70, Bay Street, Toronto. The price of the elevator, with pulleys and rope complete, is $10.

Worthen and Baker's Hand-Loom.

We direct attention to an advertisement in our present issue, of this very useful domestic machine, which we have had an opportunity of examining and seeing at work at Mr. Norris Black's in this city. It is neatly furnished, occupies comparatively little room, appears to be very easily operated, and to turn out good work. Such a machine would be invaluable to many of those who reside at a distance from large towns; and, indeed, almost any farmer in whose household the female members have any leisure would find it advantageous to possess one of these looms. We all know that the quality of home-made goods is genuine, and, as a rule, far superior in strength and durability to any that can be bought. The manufacturers thus speak in reference to the capabilities of the machine:

"The simplicity of this machine, and the speed and accuracy with which it performs all the work of making cloth, is admired by all who see it operate.

"It lets off the warp, winds up the cloth, throws the shuttle, and treads the treadles by simply turning an easy crank. When the warp is drawn through the reed and harness, on the same warp, Jeans, Satinett, Tweed, Linsey, Blanket Twill, Double Plain, Fencing Twills, and various kinds of Ribbed Goods and Balmoral Skirting can be woven. To make the changes from one kind of Cloth or Twill to another, requires but two minutes, and they are so easy and simple that a child can make them after one time showing. The improved Loom also weaves Flannel, Cassimeres, Flax and Tow, Linen Bagging, and all Wool, Hemp, and Rag Carpeting. Warping and beaming is done in the same way as per the old-fashioned Hand Loom, and every provision is made on the Loom to facilitate the beaming of work."

Multiplying Seedlings.

To the Editor of THE CANADA FARMER:

SIR,—One sometimes conceives a good idea, but neglecting to put it in practice, so as to communicate it, it is lost. Mine came too late to put in practice this spring, but unwilling that my flower should "blush unseen," I take the first opportunity of giving it to the world.

Everybody conversant with fruit-raising is aware that good fruit trees are raised from seed, in fact that our best varieties originate in no other way; but the proportion of good seedlings is so small, it is so long waiting for them to bear, and the whole expense and trouble of bringing them out so great, that any plan of lessening the expense and time will be considered important.

My plan is this: take cuttings from such seedlings as may be considered worth testing, and graft or bud them upon the previous year's wood, of a healthy grown tree. In this way an immense number of scions could be put on one tree, and nearly every orchard has one or more suitable trees, which do but little in the way of bearing fruit. I am of opinion that the wood of a young plant grafted into a tree of mature growth, would bear as soon as a scion from the old tree. I may be wrong; the thing has not been tried yet; but if it succeeds as well as I expect, what an immense number of apple, pear, and other seedlings can be put on trial at a very small outlay of time or money. I hope some of your readers who have a desire to benefit themselves and the fruit-eating community by developing new fruits, will give my plan a trial, and I would just remind them that the budding season is not very far off, and may be taken advantage of for the purpose.

TENDEAU L'ARRADEE.

Asparagus in France.

THIS is one of the leading vegetables in France. The following, from the London *Journal of Horticulture*, shows how careful they are in selecting seed:

"Every grower raises his own roots by sowing selected seed. The largest and earliest ripened seeds are chosen. A bed of sandy, unmanured soil is lined off, forming little furrows twelve inches apart, and the selected seed finger-and-thumbed-in at least four inches apart. After the rake has been drawn over all, the seed will be two inches from the surface. This operation is done on a dry day in February. By the end of March, a hoeing before the seeds germinate tends to keep the seed beds clear of weeds, after which the young plants soon begin to show themselves above ground. The end of April and the beginning of May bring hot, dry weather. A slight mulching with decayed manure is now applied. After this nothing more is required but a little hand weeding and repeated waterings in very hot weather throughout the year. At the period when they may be termed yearlings, with half an inch of growth, which will be about the end of March, is the time when the planting in the *Aspergerie* takes place.

How to Make Gravel Walks.

In the first place remove all the soil and vegetable mould, where the walk is to be made, to the depth of six or more inches, so that there will be nothing to promote the growth of grass roots. If this precaution is not taken, grass roots will soon spread from the sides of the walk, and grass will cover the entire foot path. After the way has been evacuated to the desired depth, let the depression be filled with coarse gravel, if it can be obtained, and the surface covered with clean, small gravel, about one or two inches in depth. Then roll the surface with a heavy roller. If any stray spears of grass should appear in the walk, let them be pulled up at once. A more effectual way, however, is to sprinkle salt over the walk, or apply a weak brine with a watering pot. A weak brine will effectually destroy all vegetation in a walk, at an expense of only a few dimes on the salt.

Another way to form the body of a walk is to fill the excavation with blacksmith's and iron founder's cinders, or pieces of old brick, old mortar, lime siftings, oyster and clam shells, or anything else of a similar character. Then cover the surface with about two inches of sharp, clean gravel, that is free from mould, or anything that will promote the growth of vegetation. If gravel must necessarily be carted a long distance, the surface of rubbish may be covered with only a thin coat of clean gravel. Let it be borne in mind that one barrel of salt sowed over the walk, will save much labor and expense in keeping down weeds and grass. This is a very cheap and satisfactory manner of making a loose or open gravel walk. Where the soil is heavy, and there is only a thin stratum of mould on the surface, resting on a compact subsoil, in which there is little or no vegetable matter, nothing but the thin stratum of mould need be removed, where a walk or carriage drive is to be made.—*N. Y. Times.*

Tree Mignonette.

Sow a pinch of seed in the centre of as many three inch pots as there are plants required. When the young plants are strong enough thin them by degrees to one plant in a pot, and that must be the strongest. Train that up a stake to the height required, pinch out all side shoots and the heads of bloom, but do not divest the stem of its leaves until the plant has attained its full height. To form a head leave about three shoots at the top, and pinch them in from time to time.

I have had tree Mignonette four and five feet high, with heads two feet through, by sowing the seed, as above described, in August, and growing the plants for twelve months, shifting into larger pots when required. These were handsome objects in the conservatory, and afforded many cut flowers all winter. For ordinary sized trees the seed should be sown during the first week in May, to bloom throughout the following winter. Different catalogues announce a giant variety for this purpose, but in growing the two I have found no difference.—THOS. RECORD, *Hawkhurst, in London Journal of Horticulture.*

TRANSPLANTING CABBAGES.—The *Gardener's Monthly* recommends the following mode for enriching the soil for young cabbage plants just before they are set out, for the purpose of giving them an early and vigorous start. Make holes with a dibble where the plants are to be set, and then fill these holes with manure water. It soaks away into the surrounding earth, and becomes perfectly diffused through it. The plants are then set in the holes.

TRANSPLANTING IN THE NIGHT.—A gentleman anxious to ascertain the effect of transplanting at night, instead of in the day, made an experiment with the following result: He transplanted ten cherry trees while in bloom, commencing at four o'clock in the afternoon, and transplanting one each hour, until one in the morning. Those transplanted during daylight shed their blossoms, producing little or no fruit; while those planted during the darker portions maintained their condition fully. He did the same with ten dwarf pear trees, after the fruit was one-third grown. Those transplanted during the day shed their fruit; those transplanted during the night perfected their crop, and showed no injury from having been removed. With each of these trees he removed some earth with the roots. The incident is fully vouched for; and, if a few more similar experiments produce the same result, it will be a strong argument to horticulturists, gardeners, and fruit-growers to do such work entirely at night.

THE USE OF FLOWERS.—Says a writer in *Harper's Weekly*:—There has been of late years a marked increase in the use of flowers for social purposes. Every dinner party or dancing party must now be graced with these "stars of the earth." At larger assemblies there is always a lavish display of flowers, as if it were designed to intoxicate the guests with the delicious odors of innumerable blossoms. If we visit a lady, flowers must precede our coming; if we drive out with her, the odor of flowers must sweeten the pleasure. Superb presentation baskets and bouquets are now seen in almost every parlor, and are the horticultural compliments of gentlemen to ladies. The favorite flowers are the camellia japonica, the sweet Neapolitan violet, and the white and tea rose. Although a large capital is employed in producing these, the supply is always unequal to the demand, and they bring high, even extravagant prices, on great occasions. Flowers are of course extensively used at weddings, but according to the florists, they are employed more liberally at funerals. Five hundred dollars are not unfrequently expended in crosses and wreaths for these solemn occasions.

Agricultural Intelligence.

An Agricultural Degree.

We are glad to learn from our British Exchanges that the University of Edinburgh intends to confer the Degrees of Bachelor and Master of Agriculture ("Agr. B." and "Agr. M.") on all who may be found worthy of such distinctions. Before any candidate can graduate in agriculture, he must satisfy the examiners as to his general attainments by undergoing a preparatory examination, unless that be rendered needless by the possession of certain specified certificates of qualification. The following is the published programme:

"The candidate who has passed successfully this examination may present himself at the next examination for his degree of Bachelor of Agriculture. For this examination the candidate must produce certificates of acquaintance with practical agriculture, and is required, with the view of specializing his studies, to profess one, and not more than one, of the following groups of subjects, with their practical relations to agriculture:—A. Natural Sciences—Botany, Geology and Zoology; B. Experimental Science—Chemistry and Physics; C. Mechanical Science—Mechanics and Engineering. The certificates of the Royal Agricultural Society, the Highland Society, and the Royal Agricultural College will be accepted for practical agriculture.

"Successful candidates who have thus acquired the Degree of Agr. B. may at the next period of examination, provided they have attained the age of 21, proceed to the examination for the Degree of Master of Agriculture (Agr. M.). For this Degree the candidate will be required to submit to a searching examination on one of the following subjects, in its special relation to agriculture:—A. Agricultural Chemistry—organic and inorganic:—B. Agricultural Mechanics—Machinery and Implements; C. Engineering (Civil) Surveying and Draining, &c.; D. Natural History—Botany, Geology, &c.; E. Animal Physiology—breeding, rearing, &c., of animals. The examinations for Degrees will be conducted by University examiners, and an examiner appointed by the Highland Society."

Agricultural Societies & Officers for 1868.

We publish in the present issue, as we did in the corresponding issue of last year, a list of the Agricultural Societies and officers for the current year, so far as returns have been made. Omissions, where they occur, must be attributed to the fact of no return having been sent in. Where blanks appear under the column headed Treasurers, it is to be understood that the office is held in connection with the Secretaryship. As soon as the new law comes fully into operation, it is expected that a more regular system will be adopted, and one which will enable us to give a still more complete and an earlier list.

☞ The canker worms have begun their depredations in the neighbourhood of Newton and Auburndale, Mass., and the foliage of the trees is rapidly changing to a rusty red.

☞ A new variety of corn, the result of selecting seed and of high culture, has originated in Minnesota. The yield last year was as high as one hundred and thirty-seven bushels to the acre.

FALL EXHIBITION.—The annual Exhibition of the South Simcoe Electoral Division Agricultural Society will be held at Bradford on Thursday and Friday, Oct. 1st and 2nd.

ARMY WORM.—The Corinth, Miss., *Model. Farmer* for May, says the army worm is on the march there in amazing force. The *Farmer* makes the following astounding statement: "The movements and numbers of this insect are astounding. The army worm has appeared in this country near the State line, and is now moving southward. Their breadth is about two miles, and they are stripping the forest of all foliage in their path. There are so many millions, that last week they actually stopped the freight train on the Memphis and Charleston Railroad. The worms were so thick on the track that they accumulated on the wheels until it caused the drivers to slide on the rails. We don't think this is the regular army worm, but a species of insect smaller, and not so destructive to vegetation."

AGRICULTURAL AND HORTICULTURAL SOCIETIES AND OFFICERS, 1868.

NOTE.—Towns distinguished by an asterisk (*) have organized Horticultural Societies, under Section 26 of the Statute.

SOCIETIES.	PRESIDENTS.	SECRETARIES.	TREASURERS.
ADDINGTON	John Sharp, Bath	John B. Aylsworth, Newburgh.	
Camden	Peter Mills, Newburgh	"	
Loughborough	Wm. Lawrence	Wm. Boyce.	
Sheffield	G. R. Miller, Tamworth	J. Brown, Tamworth.	
Portland	Joseph Watson	James Cooke.	
ALGOMA			
BRANT, NORTH	Louis B. de Lapierre	D. R. Dickson, Paris.	
Dumfries, South	A. McWilliams, Mt. Vernon.		
Onondaga	Richard Harris	D. Stenebaugh.	
Brantford, East		J. Bingham, Burford.	
BRANT, SOUTH		Duncan McKay, Brantford.	
*Brantford		B. F. Fitch, "	
BRUCE, NORTH			
Amabel	Wm. White	J. McCulloch, Clavering	John W. Hodgins.
Arran	Wm. Gibson, Invermay	J. N. Gardner, Invermay	John Douglas, Tara.
Bruce	C. McLean, Underwood	P. Sinclair, Underwood.	
Elderslie	John Johnson, Paisley	James Saunders, Paisley.	
Saugeen	Jas. Sibbald	Archibald Roy.	
BRUCE, SOUTH	Richd. Rivers, Walkerton	Wm. Fraser, Walkerton	Jas. Waterson, Walkerton
Kincardine	Stephen Walsh	Thos. Bradley	Robt. Madden.
Huron	R. L. Watt	David Henderson	Thos. Wilson.
Carrick	Thos. Inglis	W. J. Parsill	George Rife.
BROCKVILLE	Dr. J. Hurlburt, Brockville	C. Sibbald, Brockville	C. Fletcher, Brockville.
BOTHWELL	Jas. Smith, Dawn Mills	Isaac Unsworth, Florence.	
Sombra	Geo. Ramsay, Wilkesport	P. Cattenach, Sombra.	
Dawn and Euphemia	Thos. Carey, Florence	Isaac Unwin, Florence	Robt. Gunne, Florence.
CARLETON	D. Kennedy	A. S. Woodburn, Ottawa.	
Gower, North		W. Elliott, North Gower.	
Huntley	S. McBride	W. Rivington.	
March	J. G. Street	G. W. Monk.	
CARDWELL	John Mitchell	John Allan, Mono Mills	J. Alexander, Mono Mills.
Caledon	Alex. McLaughlin	David Kirkwood	John Harris.
Mono	John Mitchell	John Anderson	M. McCarthy.
CORNWALL	David Tait	J. S. McDougall, Cornwall.	
DURHAM, EAST	John Thorn, Millbrook	John Foott, Port Hope	Wm. Sisson, Port Hope.
Cavan	Thos. McCamus, Balleboro'	J. W. Sootheran, Millbrook.	
DURHAM, WEST	E. G. Power, Bowmanville	R. Windott, Bowmanville	M. Porter, Bowmanville.
Clark	Saml. Wilmot	Jacob Casselman	H. Middleton.
Darlington	M. Joness	R. Windott.	
*Bowmanville		John McLeod, Bowmanville.	
DUNDAS	Wm. Bimon, Iroquois	A. G. Macdonell, Morrisburgh.	
Mountain	John Rennick, Inkerman	R. Shaver, South Mountain.	
Matilda	John Graham "	Adam Harkness.	
Williamsburgh	James Thompson	Wm. Whitteker.	
ELGIN, EAST	Jas. Armstrong, Union	H. F. Ellis, St. Thomas	John King, St. Thomas.
Malahide	Chas. Ross, Groveseend	Robt. Ward, Aylmer.	
Yarmouth	Geo. W. Mann, Union	L. S. Leonard, St. Thomas.	
Dorchester, South	John Clunas, Springfield	M. Fullarton, Lyons.	
ELGIN, WEST	Thos. McCall	John A. Philipott, Iona.	
ESSEX	J. S. Kollage, Amherstburg	H. Botsford, Amherstburg	Jas. Noble, Windsor.
Malden and Anderdon	R. Golden, "	" "	D. Campbell, Amherstburg.
Gosfield and Mersea	T. Malott, Leamington	W. H. Foster, Leamington	J. C. Fox, Glinda.
Tilbury, West	George Pool	James F. Dodd.	
FRONTENAC	J. Simpson, Junr., Cataracqui	Isaac Simpson, Kingston.	—— Northmore.
Kingston	H. Robinson	John Simpson	
Pittsburgh	Henry Wilmot	Robt. J. Milton.	
Storrington	Wm. Duff, Inverary	T. T. Conklin, Inverary.	Daniel Campbell.
GLENGARY	J. Macpherson, Lancaster	Thos. McDonell, Williamstown	
Lochiel and Kenyon	M. McGillivray, Kirkhill	Alex. McDonell, Lochiel.	
GRENVILLE, SOUTH	George Heck	Thos. Tracy, Prescott.	
Edwardsburgh	Jas. Miller	Jas. Robertson	Gideon Fairbairn
GREY, NORTH	Martin Catlired	Thos. Gordon, Owen Sound	Alex. Crichton.
Collingwood and Euphrasia	Geo. Vickers, Heathcote	Wm. Hewgill, Heathcote.	
St. Vincent	S. D. Speer	John Albery	D. L. Layton.
Derby	Jas. Webster	Donald Fleming.	
*Owen Sound		Thos. Gordon, Owen Sound.	
GREY, SOUTH			
Bentinck	James Edge	Adam Cochrane.	
HALDIMAND	David Thompson, Indiana	Jacob Young, York.	
Seneca	Edwd. Bertram, York	F. A. Nellis, York.	
Cayuga, South	M. Crawford, Dunnville	W. Braund, Dunnville.	
Rainham	W. Kellam, Rainham Centre	John Law, Rainham Centre	
Walpole	J. P. Biggar, Erie	W. R. Hewitt, Chesapside.	
HALTON	Adam Sproatt, Milton	W. C. Beaty, Omagh.	
Esquesing	J. T. Standish, Georgetown	John Murray.	
Nelson	Joshua Freeman	R. B. Ireland.	
Trafalgar	J. A. Chisholm, Oakville	H. Switzer, Palermo.	
HAMILTON	H. J. Lawry	A. E. Walker, Hamilton.	
HASTINGS, NORTH			
Rawdon	C. A. Jordison	G. E. Bull	H. G. Thurber.
Huntingdon, Madoc, Elzevir and Tudor	J. R. Ketcheson	Chas. Gream	E. Mouncy.
HASTINGS, EAST	J. J. Farley, Canifton	P. R. Palmer, Thurlow	W. Hudson, Roslin.
Thurlow	Thos. Martin	" "	Wm. Chapman.
Tyendinaga	Wm. McLaren	Chas. Anderson	Thos. Earl.
HASTINGS, WEST	Benjamin Gilbert	Saml. D. Farley	W. H. Graham.
Sydney	Bradley Mallory	D. R. Ketchason	J. A. Chisholm.
HURON, NORTH			
Turnberry	F. W. Irwin, Turnberry	Hugh Lowry.	
Morris	Wm Wilson	Thos. Holmes	Jas. McCowan.
HURON, SOUTH	Jas. Dickson, Goderich	Hugh Love, Hill's Green	G. E. Cresswell, Seaforth.
KENT	Geo. Young, Chatham	Jas. Hart, Chatham	Geo. D. Ross.
Chatham	D. Sicklested, Janr	Robert C. Struthers.	
Raleigh	H. Dalson, Chatham	J. Jenner, Charing Cross	S. White, Charing Cross.
KINGSTON		A. J. Briggs, Kingston.	
LAMBTON	A. Rawlings, Warnerswood	E. Watson, Sarnia	Arch'd Young, Sarnia.
Bosanquet	W. Hollingshead, "	J. Fripp, Forest.	
Warwick	Jas. Graham	George Smith.	
Plympton	J. Kennedy, Camlachie	J. Simpson, Aberarder	W. Brown, Wyoming.
Moore	David Hossle	Wm. Mowbray.	
Enniskillen	R. Brock	Capt. Tracey.	
Brooke	James Lovell	Edwd. Bowlby.	
LANARK, NORTH	W. Mostyn, Almonte	David Campbell, Almonte.	
Dalhousie	D. McDougall	John Donald.	
Lanark	Alex. Stewart, Lanark	Jas. Young, Rosetta.	
Pakenham	Andrew Dickson	A. Fowler.	
LANARK, SOUTH	Alexander Cuthbertson, Perth	Archie McNee, Perth.	
Montague	Peter Clark	E. Chalmers	R. Carnduff.
Beckwith	Robert Bull	A. McArthur.	
LEEDS AND GRENVILLE	D. H. Eaton, Frankville	H. H. Brennan, Frankville	S. J. Southwork, Frankville.
Gower, South	Joseph Adams	John S. Adams.	
LEEDS, SOUTH	Dr. Richmond, Gananoque	W. Brough, Gananoque.	
LENNOX	G. J. Smith, Morven	Chas. James, Napanee.	
Richmond	Wm. Dawson	G. D. Sweet.	
Fredericksburgh, North	John Dunkar, Napanee	Nelson Dollar, Napanee.	
" South	Wm. Phippen	E. Mallory.	
Ernestown	P. McPherson, Bath	Robt. Aylsworth, Odessa.	
LINCOLN	John Lawrie, Port Dalhousie	Jas. H. Bessey, St. Catharines	Jas. Lawrie, St. Catharines:
Grantham	Thos. Keyes	Saml. Goldsmith	J. Robertson.
Grimsby	Dennis Vandusen	A. H. Pettet.	

SOCIETIES.	PRESIDENTS.	SECRETARIES.	TREASURERS.
Louth	J. J. Gregory, St. Catharines	Percival Frest, St. Catharines	David Crow, St. Catharines.
*St. Catharines		W. Eccles, St. Catharines.	
LONDON	Jas. Johnson, London	W. McBride, London	John Stewart, London.
MIDDLESEX, NORTH	L. E. Shipley, Lobo	W. K. Atkinson, Alias Craig.	
Biddulph	Alex. Grant, Grantou	Wm. Porte, Lucan.	
Williams, East	L. E. Shipley	J. C. Priestly.	
" West	Mathias Mackey	John Dawson.	
MIDDLESEX, EAST	Geo. G. Magee, London	Henry Anderson, London	Alex. Kerr, London.
Dorchester, North	Richd. Firley	James B. Lane.	
Westminster	Alex. McArthur, London	Robert Fleming, London	Jas. Beattie, London.
London	Robt. Robson	Robt. Orr	Thos. Elliot.
MIDDLESEX, WEST	Thos. Moyle, Napier	Jas. Keefer, London.	
Delaware	Chas. J. Fox	Dr. A. Francis.	
Carradoc	J. B. Burwell	W. E. Sawyer.	
Metcalfe	H. Thompson, Napier	R. Richards, Strathroy.	
Ekfrid	Malcolm Campbell	A. Douglas.	
MONCK	Geo. Secord, St. Ann's	D. C. Holmes, Wellandport.	
Gainsborough	J. L. Heaslip	S. Kennedy	Jacob Upper.
NIAGARA	Robert Shearer	P. M. Whitlaw, Niagara	G. A. Clement.
NORTHUMBERLAND, EAST	J. A. Clark, Brighton	R. P. Hurlbut, Percy	John Eyre, Brighton.
Cramahe	Robt. Scripture	Wm. Easton.	
Percy	Wm. Humphries	R. P. Hurlbut	John Douglas.
NORTHUMBERLAND, WEST	John Henderson, Cold Springs	Chas. Brown, Cobourg	Walter Biddell, Cobourg.
Hamilton	Wm. Masson	R. Cullis	T. McEvers.
Haldimand	Joseph Baker	Josias Gillard.	
*Cobourg		J. A. Polkinghorne, Cobourg.	
NORFOLK, NORTH			
Windham	W. H. Ball, Scotland	D. W. Freeman, Simcoe	R. A. Clement, Scotland.
NORFOLK, SOUTH	H. J. Kilmaster, Port Rowan	A. W. Smith, Simcoe	J. D. Morgan, Waleingham Centre.
Charlotteville	Jas. Covernton	" "	Joseph McCall.
Woodhouse	Oliver Austin	Thos. M. England	James Walker.
ONTARIO, NORTH	Geo. Wheler, Uxbridge	John Christie, Manchester	Robt. Spears, Uxbridge.
Reach and Scugog	Jas. Graham, Saintfield	" "	W. Scott, Prince Albert
Brock	John Hart	Saml. Brethorn	Richard Edwards.
Scott	Geo. Thompson, Ashworth	Andrew Turner.	
Thorah	C. H. Davidson	N. F. Paterson	Chas. Robinson.
Mara and Rama	A. Kennedy	A. Thorne	A. Dudenhafer.
ONTARIO, SOUTH	John Shier, Whitby	Geo. Robson, Whitby	Wm. Paxton, Whitby.
Whitby and East Whitby	W. B. McGaw, Foley	John Willis, Whitby	Robt. Smith, Oshawa.
Pickering	Joseph Wixson	Hector Beeton	T. C. Hubbard.
OXFORD, NORTH	John Craig	R. W. Sawtell, Woodstock.	
" SOUTH	Malcolm Smith, Tilsonburg	R. T. Williams, Culloden.	
Dereham	Philip Falls, "	" "	
OTTAWA	T. B. Lewis	A. S. Woodburn, Ottawa.	
PEEL	M. Perdue, Campbell's Cross	A. B. Scott, Brampton.	
Toronto	Emerson Taylor, Credit	Thos. D. King, Cooksville.	
Toronto Gore	Wm. Porter, Humber	John Linton, Humber.	
PERTH, NORTH	Robert Moderwill, Stratford	Stewart Campbell, Stratford.	
Wallace and Elma	W. G. Hay	John Binning.	
PERTH, SOUTH	Wm. Lang	W. R. Ford, St. Mary's	Robt. Harstone, St. Mary's.
PETERBOROUGH, EAST	Francis Birdsall	W. E. Rozborough, Norwood.	
" WEST			
Monaghan, South	Edward Kerr, Beresfort	John Riddell, Beresfort	H. Crossley, South Monaghan.
PRESCOTT	Thos Higginson, Hawkesbury	John Shields, Vankleek Hill	James Boyd, Vankleek Hill.
Caledonia	Wm. Bradley	H. J. Bradley.	
Hawkesbury (East and West) and Longueuil	Hon. John Hamilton	Simeon Case.	
PRINCE EDWARD	Archd. Southard	J. P. Roblin, Picton.	
Marysburg	Isaac J. Striker	H. Wellbanks, Milford.	
RENFREW, NORTH	W. Findlay, Westmeath	N. W. Jackson, Westmeath.	
Ross and Bromley	John Rankin	R. Allen.	
RENFREW, SOUTH	J. L. McDougall. Renfrew	Robt. McLaren, Renfrew.	
McNab	Donald Stewart	D. McNamara.	
Admaston	Wm. Gardner	Alex. Brown	John Stewart.
RUSSELL	John Kennedy	Ira Morgan, Osgoode.	
Osgoode	Joseph A. Campbell	Jas. Cowan.	
Russell	Wm. Craig	E. F. Loucks.	
SIMCOE, NORTH	W. Raikes, Barrie	Joah. Thomas, Barrie	John Darby, Barrie.
Nottawasaga	J. D. Laidlaw, Stayner	H. M. Frame, Duntroon.	
Vespra	Edward Cave, Barrie	Geo. Sneath, Midhurst	Robt. Leadley, Midhurst.
Oro	Wm. Gardner, "	Joseph Thomas, Barrie.	
Flos and Medonte	Wm. Wilson, Medonte	Wm. Harvey, Elmvale	John Craig, Craighurst.
Orillia	J. H. S. Drinkwater, Orillia	Geo. Tudhope, Rugby.	
Tay	Chas. Ross, Penetanguishene	Jas. Darling, Penetanguishene.	
SIMCOE, SOUTH		W. M. Stevenson, Bradford.	
Gwillimbury, West	Wm. D. Stoddart	Edwd. Jaffs, Junr.	
Tecumseth	Thos. Cross	Stewart Walker	John Austin.
STORMONT	Wm. Colquhoun	Geo. Shaver, Dickinson's Landing.	
Finch	Wm. Baldwick	Wm. Mellush.	
TORONTO	John Gray, Toronto	W. Edwards, Toronto.	
VICTORIA, NORTH	Duncan McRae, Balsover	J. S. Russell, Kirkfield	Jas. Stewart, Woodville.
Bexley, Digby and Laxton	Wm. Corbett	Saml. P. Corbett.	
Eldon	John Morison	Geo. Millar	John C. Gilchrist.
Fenelon	R. Graham	J. D. Naylor.	
VICTORIA, SOUTH	Saml. Methesett, Oakwood	W. J. Thirkell, Lindsay.	
Ops	Wm. Thorn	Wm. Baynton.	
Mariposa	Saml. Wetheral	John Barnard	E. A. Bowes.
Emily	Wm. Cottingham	J. R. McNeillie	A. McQuade.
Verulum	Joseph Kilso	W. B. Rind.	
*Lindsay		C. Read, Lindsay.	
WATERLOO, NORTH	John McDougall	Moses Springer, Waterloo.	
" SOUTH	Thos. Chisolm, Galt	Alex. McGregor, Galt.	
WELLAND	John Mitchell, Stamford	A. Reid, Crowland	John Rannie, Alanburg.
Willoughby	H. J. Bean, Black Creek	Robt. McCredie, Chippewa.	
Bertie	R. Disher	E. A. Dickout	B. M. Disher.
Crowland	L. M. Matthews, Port Robinson	Alex. Reid, Crowland	Henry Buchness, Crowland.
WELLINGTON, NORTH		Jas. Isles, Arthur	Wm. White.
Amaranth	Robt Bowsfield	Edwd. Bayne	Adam Spence.
Minto	John Laing	Alex. Meiklejohn.	
Mayborough	Wm. Ayerst	Wm. Paterson.	
Peel	Jas. Gibson	Wm. Watson.	
WELLINGTON, CENTRE	Chas. Clarke, Elora	John Beattie, Fergus	
Garafraxa	Harvey Cull	Andrew Nichol.	
Erin	Edwd. Johnson, Ospringe	John W. Burt.	
Eramosa	David Day	H. H. Swinford.	
Nichol	Robt. Tindall	G. H. Todd.	
Pilkington	Thos Bate	Robt. Crofnar.	
WELLINGTON, SOUTH	Kenneth McKenzie	Geo. Murton, Guelph.	
Puslinch	John Black	Joseph Grant.	
WENTWORTH, NORTH	Thos. Smith	J. Weir, Junr., W. Flamboro.	
Beverley	Wm. Henderson	John Armstrong.	
Flamboro, West	Thos. Bain, Strabane	C. Durrant, W. Flamboro.	
WENTWORTH, SOUTH	Ira Rymal, Rykman's Corners		
Saltfleet and Binbrook	M. Laidman, Binbrook	J. Davis, Mount Albion.	
Glandford and Barton	W. M. Calder	Ira Rymal.	
YORK, NORTH	John Rogers, Newmarket	E. Jackson, Newmarket.	
King	Robt. Norman, King	Joseph Stokes, Kettleby.	
Whitchurch	J. Lloyd, White Rose	M. Jones, Bloomington.	
Gwillimbury, East	R. Powell, Holland Landing	A. J. Hughes, Sharon.	
Georgina, and Gwillimbury, North	Isaac Marrett, Georgina	Angus Ego, Georgina.	
YORK, EAST	W. Milliken, Unionville	Jas. Robinson, Markham.	
Markham	Wm. Padgek, "	Jas. Speight, "	
Scarborough	John P. Wheler, Woburn	John Crawford, Malvern.	
York (Eastern half)	Wm. Lea	John McCarter.	
YORK, WEST	John Abell, Woodbridge	B. Bull, Davenport.	
York (Western half)	(See East York)		
FRUIT GROWERS' ASSOCIATION	W. H. Mills, Hamilton	D. W. Beadle, St. Catharines.	

Entomology.

The Wheat Midge.

SHORTLY before the issue of our last number, but too late for insertion in it, we received the following communication from Mr. Alex. J. Belch, Proprietor of the *St. Mary's Argus*. It was accompanied by a lump of clay containing an enormous number of small orange-yellow larvæ:—

(MR. BELCH'S LETTER.)

"A farmer of Blanshard has just handed me the enclosed lump of mud, containing the 'rare things' you notice in it, and which he and his brother farmers pronounce 'the weevil.' The handful was scraped up from a field in which was fall-wheat last year, and which contains wheat this year. The whole field is covered with these insects, discovered just after the late heavy rain, but none can be found on meadow land or in fields sown to peas and other grain last year. It is the opinion of farmers hereabout that the insects remain in the land all winter, from the fact that they are too far advanced in growth to be the product of the egg deposited by the fly this year. They are not found on land unaffected by weevil last year, nor upon land sown to other crops last year, or upon meadow land.

"Of course all depends upon whether the insects really are the weevil or something resembling it. I may say that all intelligent, observing farmers in this section, to whom the clay was shown, unhesitatingly pronounce it the weevil, and they feel so interested in the matter that I have thought it would be well to let you see a specimen, and ask you to ventilate the subject by enquiring through the CANADA FARMER whether the same deposit has been observed in other sections of the country. The investigation might possibly throw some clearer light upon the origin of that farmers' scourge, the weevil, than already exists."

We have given a very close and careful examination to a large number of the specimens contained in the portion of earth sent us, and can now state positively that the orange-yellow larvæ or maggots are the larvæ of the well-known wheat-midge (*Cecidomyia tritici*), an insect commonly, but erroneously, called "the weevil." To render us the more certain of the identity of the insect, there issued from the loose wrappings round the lump of earth, a single winged specimen which we had no difficulty in determining to be a male wheat-midge; the sex is remarkable, as, in general, myriads of females may be taken in the fields they infest, while a male is very rarely found.

With regard to the occurrence of these larvæ in the ground early in June, it is only what we should naturally expect, for, as we stated in an article on the 1st of May last, a large proportion of the larvæ descend into the ground to undergo their transformations, while some remain permanently in the ear. The specimens before us, in all probability, entered the earth last year before the crop was removed from the field, and there remained till the spring; the heavy rain referred to by our correspondent, quickened them into activity, and caused them to approach the surface of the earth; then the pupa state is assumed for a short time, from which they emerge in the form of winged flies, usually in the month of June, ready to lay their eggs in the blossoms of the new crop of wheat. We fear that the farmer from whose land were brought the specimens before us will obtain but a scanty crop of wheat this year, if the whole field is even half as thickly infested with the insect as the portion of earth sent to us. It is a great pity that wheat was again sown in the same field; the best plan would have been to have ploughed under the surface soil as deeply as possible, and then have grown upon it a totally different crop; the majority of the insects would thus have been either prevented from coming to maturity, or so much retarded as to be unable to do much injury.

The effect of moisture upon these insects is very remarkable. During our examination of them, we took a few dry, motionless specimens, and laid them upon a piece of glass, where they remained perfectly still; then we dropped a little water upon them, and almost immediately they began to move about, crawling over the surface of the glass as long as the water surrounded them; after a time the drop evaporated, and very soon they became as stiff and motionless as before. This experiment we repeated several times, and always with the same result. Dr. Fitch has also observed somewhat similar effects, so much so, that he speaks in one place of the larva as being amphibious in its nature.

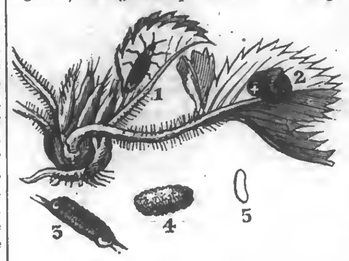
We shall be glad to learn from our correspondent what is the condition, from time to time, of the wheat field from which this earth was taken; we shall also be especially anxious to hear how the crop turns out, and whether the midge proves troublesome in the neighbourhood. It is only by gathering together information from different localities, and under different conditions and circumstances, that we can ever expect to understand completely the life history of our insect enemies; and to know thoroughly their nature and habits is the greatest help of all towards finding out an effectual remedy.

The Strawberry Worm.

(*Emphytus maculatus.*)

As this delicious fruit is now so universally cultivated, it is well for us to be acquainted with its enemies, that they may be prevented from such undue multiplication as to become a universal curse.

There are two caterpillars which, by their very destructive attacks on this plant, have of late years attracted attention in the West. One of them is a true caterpillar—the larva of a moth—rather more than one and a half inches long, of a pea-green color, smallest at the first, and largest at the last segment; curling itself up in a ball and falling to the ground whenever the plant is touched. The other is a false caterpillar—the larva of a four-winged fly—much smaller, but more destructive, and it is the history of this last that I will now elucidate.



This insect is, in all probability, quite generally distributed throughout the West, as it occurs in the southern portion of this State, and I have found it in this county. Complaints of its ravages have also been sent me from Berrien County, Mich., and Mr. W. H. Castor, of Niles, had great difficulty with them last year.

In the month of May, in this latitude, numerous flies may be seen hanging to, and flying about the vines, in fields which have been previously infested. They are dull and inactive in the cool of the morning and evening, and at these hours are seldom noticed. They are of a pitchy black color, with two rows of large transverse dull whitish spots upon the abdomen. The female, with the saw-like instrument peculiar to the insects of this family, deposits her eggs, by a most curious and interesting process, in the stems of the plant, clinging the while to the hairy substance with which these stems are covered. The eggs are white, opaque, and 0.03 of an inch long, and may be readily perceived upon splitting the stalk, though the outside orifice at which they were introduced is scarcely visible. They soon increase somewhat in bulk, causing a swelling of the stalk, and hatch in two weeks—more or less according to the temperature—and by the middle of May (speaking of Northern Illinois) the worms attract attention by the innumerable small holes which they make in the leaves. Their colors are dirty yellow and gray-green, and when not feeding they rest on the under side of the leaf, curled up in a spiral manner, the tail occupying the centre, and fall to the ground at the slightest disturbance. After changing their skin four times they become full-grown, when they measure about ¾ of an inch.

At this season they descend into the ground, and form a very weak cocoon of earth, the inside being made smooth by a sort of gum. In this they soon change to pupæ or nymphs, from which are produced a second brood of flies by the end of June and beginning of July. Under the influence of July weather, the whole process of egg-depositing, etc., is rapidly repeated, and the second brood of worms descend into the earth during the fore part of August, and form their cocoons, in which they remain in the caterpillar state through the fall, winter and early spring months, till the middle of April following, when they become pupæ and flies again, as related.

The accompanying illustrations represent the insect in various stages: fig. 1, showing the perfect fly, natural size; fig. 2, the larva at rest; fig. 3, the larva crawling; fig. 4, the cocoon; and fig. 5, the egg enlarged.

And now, knowing the facts in the case, it will be no difficult matter for any one interested to make war in his own way. Their habit of falling to the ground enables us to destroy them with coal oil, or any other decoction, without sprinkling the vines; while, knowing that they are in the earth during the fall and early spring, when there is no fruit, the ground may be stirred and poultry turned in with good advantage.

This insect belongs to the order HYMENOPTERA, the family *Tenthredinidæ*, the genus, *Emphytus*, and as I learn from Mr. Walsh was named *maculatus* by Norton, in consideration, no doubt, of the spots above referred to.—*C. V. Riley, Prairie Farmer.*

The Black Currant Caterpillar.

To the Editor of THE CANADA FARMER:

SIR,—For the first time during the life of, or rather during the time the writer has been able to observe anything, the black currant has become affected with a worm or devourer apparently peculiar to itself. The first time it was observed was last summer, 1867, when suddenly the whole of a long row of black currant bushes became covered with innumerable light-coloured moths. There were a few worms followed, but not many, and some holes were eaten in the leaves; but the worms were very hard to find, and they did not come at all in proportion to the number of the moths.

The moths were white and ash-coloured, feathery and soft, with small black spots on the wings. They were very active and busy during the day, more so than in the evening, although they appeared in the evening also. There appeared to be so little difference between the males and the females that they could not be distinguished, and we could not trace any eggs on the leaves. This year, however, 1868, on the 13th June the worms first showed themselves, and they bid fair to strip the trees.

The worm is light in colour, white crash-coloured, with longitudinal yellow stripes down the back, with black spots; the back whiter than the side. It is a "measurer," and moves the hinder parts close up to the fore set of legs, arching its back and bringing the extremities together. The skin of the worm is not hairy. It is very active; it is a spinner also, and when disturbed throws itself down, holding on to a short web which exudes from the mouth, similar to the worm which at times devastates the oak forests in England; indeed, both worm and moth are very similar to the oak worm and moth, but it does not spin so long a thread.

Samples of the worm are enclosed herewith for the entomologist to pass judgment on and to name, and the moths all besent when it appears.

It is a curious fact that these plagues to different kinds of trees and plants make their advent, continue for a few years, and then nearly or quite die off. The Locust or accacia borer, has now ceased to work in destructive numbers, and all the locust trees are recovering, being able to grow faster than the borer can injure them. No doubt all these insects are governed by the same laws, and in time bring their own parasites with them, which reduce their numbers below the destructive point.

C.

Toronto, 18 June, 1868.

NOTE BY ED. C. F.—The caterpillars sent are specimens of the larvæ of the well-known currant moth (*Abraxas? ribearia*, Fitch), of which a full account has been given in former numbers of this journal (see CANADA FARMER, 1865, p. 231; and 1867, p. 202, for description and remedies.) It is only during the present and last seasons that we have found these caterpillars on the black currant bushes; formerly they confined themselves to the white and red varieties and gooseberry bushes. The moth, we should say, can hardly be called *white*, it is rather pale buff or nankeen yellow, with black spots. We are glad to hear that the ravages of the locust-tree borer (*clytus flexuosus*) are beginning to subside; probably a parasite affects it; should our correspondent find that such is the case, we should be glad to hear further from him.

The Palmer Worm.

A correspondent from the neighbourhood of Kingston, sends the following hint:—"The Palmer worm is very numerous in this locality. Yesterday I called the attention of a person seventy-seven years of age to the fact; he immediately got a ladder and cleared the tree of the pest. If it was of so much importance to him at his time of life, surely it must be equally so to the community at large."

We are not quite sure whether our correspondent means, by "the Palmer Worm," the insect usually called by that name in the New England States, or the common Tent Caterpillar. The former we have never met with in this country, though, of course, it is not at all unlikely that it should be found in Canada; the latter is but too well known throughout the length and breadth of our land. However, no matter which insect it is, the duty of fruit-growers remains the same—to destroy it utterly whenever and wherever seen. The tent-caterpillar had better be destroyed at night or on rainy days, when all the inhabitants of a web are at home; this can easily be done either by cutting off the branch and burning it, or by tying some rags to the end of a pole, and with it rubbing off the whole nest, burning or stamping on all its inhabitants.

The habits of the Palmer-worm are different, and are thus described by Dr. Fitch:—"Appearing the latter part of June, at times excessively numerous, residing in worm-eaten leaves drawn together by silken threads, and when jarred, dropping and hanging in the air suspended by a thread: a pale, yellowish-green worm, having a dusky or blackish stripe along each side of the back, edged on its upper side by a narrower whitish stripe, and with a dusky line on the middle of the back. The pupa remaining in the same mass of leaves occupied by the worm, and giving out the moth in about ten days. The moth ash-grey, with its fore-wings sprinkled with black atoms, and having four black dots near the middle and six or seven smaller ones around their hind edge." He recommends, as a mode of destroying them, "attaching a long, stiff handle to an old tin pan, smearing the inside of the pan with tar, bird-lime, or some similar adhesive substance, and catching the worms in this by swinging it around under the tree as they hang suspended—renewing the coating as often as it becomes so covered with the worms and their threads as no longer to adhere to them."

The Apiary.

Why do Bees Refuse to stay in a Hive?

BEEKEEPERS often experience great difficulty in getting a swarm of bees to stay in a hive. Not unfrequently a few hours, and sometimes even a day or two, after a swarm has been hived, it suddenly swarms out, and either goes to the woods, or clusters again as at first. There are various reasons given for their doing so, many of which, however, are not correct. It is said by some that if a nail appears on the inside of the hive, or if the hive is planed on the inside, the bees will not stay in it. Others again affirm that bees will not stay in a painted hive, because they do not like the smell of the paint, and many other equally absurd notions are entertained by some few bee-keepers. Such reasons, however, are but the flickering rays of superstition, fast fading out before our rapidly increasing knowledge in the science of bee-culture. The principal cause of bees leaving a hive after having been newly put into it is, too great heat. When a swarm of bees are cast, they rush from the hive under great excitement, causing much animal heat. They are then, not unfrequently, put into a hive which has been standing exposed to the sun, and are then left with the rays of the sun still falling upon the hive. The consequence is, the heat becomes so great in the hive that they are compelled to leave. If the hive is new or recently painted, the heat will of course be greater. Care should be taken to keep the hive well shaded, and if the weather is excessively hot it is well to wet the hive with cold water two or three times a day for two or three days. Bees will sometimes leave from other causes, such as being hived without a queen, the queen being lost or killed; or if they had found a home in some hollow tree before they swarmed they may prefer it to the hive, and accordingly leave and go to it. Such instances, however, are rare, and the more frequent cause, as before said, is excessive heat in the hive.

BEE BATTLES.—In almost every work on bees you find accounts of bee-battles; but in no one of them (at least so far as I have seen) do you find any attempt to explain the causes of them. Now, any one who has observed bees at all, will readily agree with me that they are far too *sensible* to engage in *causeless* war, and I am surprised that some one has not, before this, found out that it has been caused by *starvation*. In every instance of it which has come under my observation, (and I am sorry to say they are not a few,) it has been the effect of want of stores. The starving bees attempting to join, and strong stocks who make violent resistance to the union, and thus ensues desperate war.—Cor. in *Bee Journal*.

Advertisements.

First Prize Cheese Vats!

TO THE DAIRYMEN OF CANADA.

THE UNDERSIGNED keeps constantly on hand the following articles: Cheese Vats and Heaters of all sizes and styles. Red Cherry Press Hoops and Followers, (turned). Screws of all sizes and patterns. Carrying Cans and Dairy Pails, of the best material. Bleached cotton Bandage Cloth, imported expressly for the trade; and everything required in the manufacture of Cheese

AT LOWEST REMUNERATIVE PRICES.

☞ My Vats took First Prize and Diploma at last Provincial Exhibition.

v5-10-1f. Address H. PEDLAR, Box 100 Oshawa, Ontario.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c box will clean twenty sheep.

HUGH MILLER & Co., Medical Hall, Toronto.

187 King Street East. v4-14-1f

LAMB KNITTING MACHINE

Price Reduced to 58 Dollars.

IT sets up its own work, knits all sizes, narrows and widens, knits the heel into the stocking, and narrows off the toe complete—producing all varieties of knit goods. It is *simple, durable, easily-operated*, and guaranteed to succeed in the hands of *every purchaser*. Send Stamp for Circular and sample stocking.

JAMES D. ORNE, *Gen. Agent.*

v5-8—tf. 176 State Street, Rochester, N. Y.

SMALL CHEESE VATS!

H. PEDLAR, Manufacturer, will send to any Railway Station in the Province of Ontario, (free of charges,) a first-class Cheese Vat, all complete, in running order, suitable for twenty to thirty Cows, on receipt of $30.

☞ All work warranted to give satisfaction.

v5-10-1f. Address H. PEDLAR, Box 100, Oshawa, Ont.

JONES & FAULKNER,

(Late J. JONES & Co.)

Dairymen's Furnishing Store!

—AND—

DEALERS IN BUTTER AND CHEESE,

No. 141 Genesee Street, Utica, N. Y.

DAIRY necessaries of every description always on hand, particularly **Pure Annatto**, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.

☞ Special attention given to Canadian orders. v4-19-1f

TO FLAX GROWERS.

THE undersigned will have, the present season, a supply of FLAX-PULLING MACHINES, which we can guarantee to do good work, having been fully tested last season. New improvements added this year. Send for cut of Machine and Price List.

OSWOLD & PATERSON,

1st May, 1868. Woodstock Iron Works. v5-9-6t.

GEO. A. DEITZ,

The Great Seed Wheat Grower,

CHAMBERSBURG, Pa., sends free a Descriptive List of the best Seed Wheats in the world. v5-11-6t

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,

v4-20-1f Port Dover, Ont.

J. H. THOMAS'

FIRST PRIZE BEE HIVES!

Persons desirous of purchasing territorial rights for my Hives, would do well to apply at once, as I will sell for the next two months, Townships at from $20 to $30, and Counties from $50 to $150.

J. H. THOMAS, Brooklin, Ontario.

N.B.—Parties residing in the Counties of Carleton, Russell, Ottawa, Pontiac, Renfrew, Lanark, Leeds, Dundas, Stormont, Glengarry and Prescott, and desiring to purchase my hives, must in all cases address their orders to JOHN HENDERSON, New Edinburgh, Ont.

ITALIAN QUEENS.

HAVING made arrangements for BREEDING a large number of Italian Queens, I will be able to fill all orders for the same, guaranteeing their purity and safe arrival by express. Have obtained two very fine Queens through Mr. Gray, of Ohio, for breeding purposes, and therefore prepared to furnish Queens of a bright color, and producing fine workers. **Price $5 Each.**

Bee keepers would do well to send their orders at once.

J. H. THOMAS.

THE BEST SHEEP MARK YET INVENTED.

IT is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr., Sarnia, Ont.

☞ N. B.—AGENTS WANTED. v5-13-tf.-o.s.t.

SHARPE'S

IMPROVED SWEDE!

NOW READY FOR SENDING OUT.

WE beg to announce to our customers that our SHARPE'S IMPROVED PURPLE TOP SWEDE can be sent forward on receipt of order, and that we are prepared to supply them in full. Our reason for curtailing their orders last season was in consequence of a very short quantity we were able to obtain. We are, however, pleased to state that we are able to surmount this difficulty this season, having made our purchases somewhat in accordance with the requirements of previous years, and consequently will endeavor to fill all orders entrusted to us.

This superior Swede has gained a world-wide reputation and far surpasses any other variety, both for quality and quantity, yet introduced. We also have the following varieties of Swede:

SHARPE'S IMPROVED SWEDE.	
SKERRING'S	DO.
MATSON'S	DO.
MARSHALL'S	DO.
SUTTON'S CHAMPION	DO.
EAST LOTHIAN	DO.
ASHCROFT'S	DO.

ALSO,—White and Yellow Fleshed Turnip Seeds in every variety.

☞ Parcels of over ten pounds DELIVERED FREE to any part of Canada.

C. & A. SHARPE,
Guelph, Ont.

v5-13-1t.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON TATE & CO.

Port Perry, March 28, 1868. v5-7-tf

FRUIT GROWERS' MEETING!

THE SUMMER MEETING OF THE

ONTARIO FRUIT GROWERS' ASSOCIATION

WILL BE HELD IN THE

AGRICULTURAL HALL, TORONTO,

On Wednesday, July 8, at 11 o'clock, a.m.

WORTHEN AND BAKER'S

HAND-LOOM

WEAVES all kinds of Cloth with either Woollen or Cotton Warp. It is all worked by turning an easy crank. Farmers would get better clothes if they would make up their own wool, especially now, when the price of Wool is so low. The above Loom can be seen in operation at

NORRIS BLACK'S,
No. 18 KING STREET EAST, TORONTO,

The Agency for the SINGER SEWING MACHINES, which is another machine that every family should have. v5-13-1t.

Markets.

Toronto Markets.

"CANADA FARMER" Office, June 27th, 1868.

FLOUR AND GRAIN.

The market has been dull and in the higher grades of flour there has been nothing doing; prices are therefore entirely nominal, and cannot be quoted.

Wheat—The market has been without animation. There was some demand for spring, but at lower prices than holders were disposed to accept; $1.40 was the price buyers were offering; in general buyers would not give over $1.40. To-day the market improved, and holders, owing to an advance in the Eastern markets, are asking higher prices. Spring is held at $1.45 and $1.47, and Fall at $1 50. We, however, heard of no sales at those prices with the exception of a small lot of 200 bush spring, which sold at $1.45. The street prices have been as follows:—There is very little coming in on the street market; spring and midge-proof $1.38 to $1.40; fall $1.40.

Oats—The market has declined since our last review. Lots are now offering freely at 45c without buyers. Retail lots on the street market have sold at from 41c to 50c.

Barley.—There is nothing doing in this grain; car lots are nominally worth from $1 to $1 05. The few lots offering on the street market bring only from 60 to 70c.

Peas.—The market has been dull and drooping, lots sold as low as 74c. A better feeling has succeeded, however, within the past two days. We heard of no sales of car lots, but a small lot sold to-day as high as 79c.

Rye—Lower; worth only from 80c to 90c, with very little doing.

PROVISIONS.

Pork.—Mess pork is held at $22 50 to $23; with but little doing, and extra prime at from $15 50 to $16 50. *Cut Meat*.—Very little doing. We quote Cumberland cut at 10½c to 11c. *Eggs*—Scarce and higher; selling at from 11c to 12c. *Butter*—The market is firm with light supply—selling at from 12½c to 13c. *Cheese*—Unchanged, about 11 cents.

HAY—As high as $21 was paid for a few loads to-day; prices ranged from $12 to $21. *Straw*—Prices ranged from $12 to $15.

SALT—American, bbl. $1 60; Liverpool coarse in bags $1 20 to $1 30.

WOOL.—The market is quiet, but some buyers have advanced prices; the ruling rates now are 25c to 26c and 27c, the latter price being paid in silver.

HIDES AND SKINS.—Hides, green, rough per lb. 5½c to 6c., do. green, inspected 7c., do cured and inspected 7½c to 8½c. *Calfskins* green, 10c., do cured 12c., do dry 18c. to 20c.

Galt Markets, June 23.—Market still dull; the quantity of wool offered is much less than in former years. Farmers are holding back in order to manufacture for themselves. The price yesterday was 21½c silver, 20½c bills.

Guelph Markets, June 23.—Fall wheat, per bush, $1 40 to $1 45; spring wheat, $1 30 to $1 36; oats 50c to 51c; peas, 70c to 75c; barley, 90c to 95c; wool, 26c to 27c; *eggs*, per doz. 12c to 13c; butter, 12c to 13c per lb.

Hamilton Markets, June 22, 1868.—*Fall Wheat*, per bush. $1 40 to $1 45; *spring wheat*, per bush, $1 38 to $1 40; *barley*, do. $1 to $1 05; *oats*, do. 52c to 55c; *peas*, do. 80c to 85c; corn, do. 65c to 70c; *potatoes*, per bag, $1 25 to $1 50.

London Markets, June 23.—*Fall Wheat* per bush. $1 25 to $1 40; *spring wheat* $1 29 to $1 33; *barley*, 75c to 80c; *peas*, 60c to 70c; *oats*, 46c to 48c; *hay*, per ton, $9 to $10; *straw*, per load, $2 to $4; *pea straw*, per load, $2 to $3; *potatoes*, per bush. by load, 75c; *carrots*, do., do., 40c to 50c.

Montreal Markets, June 24.—*Flour*, superior extra, $7 50; extra, $7; fancy, $6 60 to $6 70; Welland Canal superfine, $6 50; superfine No. 1, Canada wheat, $6 30 to $6 70; superfine No. 2, Western wheat, $5; bag flour, $3 50. *Wheat*—Canada Fall, none here; Canada Spring, $1 50; Canada Western (Chicago No. 2), $1 50 to $1 62½. *Oats*—Per 32 lbs., 40c. *Barley*—Per 48 lbs., 90c. *Butter*—Dairy, 14½ to 18½c; store packed, 13c to 15c. *Cheese*—9c to 9½c. *Ashes*—Pots, $5 37½; pearls, $5 50. *Pork*—Mess, $22 75; Prime Mess, $16 00; Prime, $15. *Peas*—97½c. *Rye Flour*—$5 75

New York Produce Market.—*Flour*—Dull; receipts 3,800 bbls; sales 6,000 brls at $6 85 to $7 30 for super state and western; $7 65 to $8 00 for common to choice extra state; $7 70 to $9 75 for common to choice extra western. *Rye Flour*—Quiet at $5 85 to $10 40. *Wheat*—Limited export demand; receipts, 72,000 bush; sales, 630,000 bushels at $2 20 for choice No. 1, Spring; $2 12 for No. 2 do. *Rye*—Quiet. *Corn*—Dull; receipts 118,000 bushels; sales, 40,000 bush at $1 05 to $1 06½ for new mixed Western afloat, and $1 11 for white western. *Barley*—Dull. *Oats*—Active and in good speculative demand; receipts, 34,000 bush; sales, 36,000 bushels at 83c for western in store; 83c to 83½c for western afloat.

Chicago Markets, June 24, noon.—William Young & Co.'s report.—*Wheat*—Receipts, 24,000 bushels; shipments, 45,000 bushels. No. 2 wheat, quiet at $1 99. *Corn*—Lower at 88½c; receipts, 145,000 bushels; shipments, 60,000. *Pork*—Unchanged

Milwaukee Markets.—June 24, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 23,000 bushels; shipments 17,000 bus. No. 1 wheat, irregular but moderately active at $1 07½ to $1 08; No. 2 wheat irregular but moderately active at $1 83½ to $1 89. Flour dull. Pork unchanged.

Contents of this Number.

	PAGE
THE MONTH	193
THE FIELD:	
"Eight Dollars an Acre"	194
Clover versus Fallow	194
Young Grass for Hay	195
Bag-Holder and Funnel, combined (with cut)	195
Wall and Board Fence (with cut)	195
Flax Cultivator	195
Greasing Waggons	195
CANADIAN NATURAL HISTORY:	
Canadian Ducks (with large engraving)	196
STOCK DEPARTMENT:	
Breathing (with cute)	198
THE DAIRY:	
Hints on Dairy Matters	199
New and Old Rennet—Coring it	199
To make Cows give Milk	199
How to Prevent Badly Weaned Calves from Sucking	199
How Country Folks Cheat City Folks	199
VETERINARY DEPARTMENT:	
Injuries and Diseases of the Horse's Foot	199
The Causes of Disease	200
Disease of the Hoof in Cattle	200
CORRESPONDENCE:	
Crops in England	200
Circular to Agricultural Societies	200
Railway Gardens	201
Oil for Insects	201
Spring-Beetle	201
Wells	201
Canadian Flora	201
Emigrant's Guide	201
EDITORIAL:	
American Pomology	201
Quebec Provincial Exhibition	202
Illinois State Fair	202
The Season	202
Roberts' Hay Elevator	202
Worthen and Baker's Hand Loom	202
HORTICULTURE:	
Multiplying Seedlings	203
Asparagus in France	203
How to make Gravel Walks	203
Tree Mignonette	203
Transplanting Cabbages	203
Transplanting in the night	203
The Use of Flowers	203
AGRICULTURAL INTELLIGENCE:	
An Agricultural Degree	203
Fall Exhibition	204
Army Worm	203
List of Agricultural and Horticultural Societies and Officers for 1868	204-5
ENTOMOLOGY:	
The Wheat Midge	206
The Strawberry Worm (with cut)	206
The Black Currant Caterpillar	208
The Palmer Worm	208
THE APIARY:	
Why do Bees Refuse to Stay in a Hive?	206
Bee Battles	200

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 50 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for ..... NINE DOLLARS.
TWENTY COPIES for ..... SIXTEEN DOLLARS.
FORTY COPIES for ..... THIRTY DOLLARS.
ONE HUNDRED COPIES for ..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director.

THE CANADA FARMER

VOL. V. No. 14. TORONTO, CANADA, JULY 15, 1868. POSTAGE FREE.

The Field.

Blank Places in the Turnip Field.

OWING to defect in the seed, or to fly ravages, there will often be blank places in the turnip field. These to a farmer of neat instincts and habits are a great eyesore. Moreover, they involve waste of rich land, valuable manure, and costly labour. When these blank places amount to a considerable proportion of the field, the loss of crop thereby occasioned becomes a serious item. It is therefore every way desirable that these blank places should be filled up and turned to some useful account. This may be done in a variety of ways. The best, were it practicable, would be to transplant from rows that have an excess of plants, and so occupy the vacancies and make the field complete. But this can hardly be said to be practicable, though we believe it is done to some extent by British farmers. The turnip does not transplant kindly, and only submits to the process in a humid climate, or during a remarkably wet time. Even under such conditions, the plant is checked and the bulb stunted. Mangolds are much more docile under transplantation. Indeed, during a spell of moist weather, they can be transplanted almost without their knowing it. Hence there need be no blank spaces in a mangold patch—ought to be none.

Blanks in the turnip field may be filled up by sowing Yellow Aberdeens, White Globes, Stubble or White Stone turnips. These mature in a much briefer time than the Swede, and though not so valuable, are by no means to be despised. They may be fed in the late fall or early winter, and made to help materially in eking out the supply of roots. The Yellow Aberdeen is the best of these late varieties, and will come to a very respectable size if the season be good, though sown three or four weeks after the general crop of Swedes. A good supply of White Stones is by no means bad filling for a bin in the cellar, or for the pot on days when there is a "boiled dinner" preparing in the kitchen. It is very little trouble, when the turnip crop is gathered, to separate the different kinds, and convey them to their proper destination.

There is another mode of filling these vacancies, which may be mentioned, though the suggestion is rather late to be of practical value the present season. It can, however, be made a note of, and acted on another year. We refer to filling up with another kind of forage crop, namely, the cabbage. There is no better expedient than this, and none that can be more easily carried out. Moreover, cabbages are greatly relished by cattle in the winter time, and are especially valuable for milch cows. Being of easy culture, the wonder is that they are not more extensively grown as a field crop. The plants require to be grown until fit for transplantation in a seed bed, which should be located in some sheltered and sunny spot, and the seed sown in early spring. The soil of the seed-bed should be very rich, well-worked and mellow. In sowing a quantity for field culture, of course a good-sized bed will be required, and it is the better plan to sow in drills, as the plants can then be more readily hoed and weeded. They will also require thinning, and if the plants can be used at different intervals, it will be well to take the larger and stronger ones first, leaving the feebler ones to grow into more vigorous condition. A moist time should be chosen for transplanting, and the work done with a tool known among gardeners as a "dibble." This tool is usually made of an old broken spade handle. The top part of the handle, about eighteen inches in length, is what is used for the purpose. A gradually tapering point is made to it, which is pushed into the soil, and withdrawn with a turn of the hand. Into this dibble-hole the young plant is set, and the dirt firmly pressed around it. The most expeditious way of doing the work is for one person to make the hole and drop the plant beside it, while another sets the plant. This is an operation in which the "young folks at home" can be employed to advantage, as their backs are short and their fingers nimble.

The Drainage of Land.

To the Editor of THE CANADA FARMER:

SIR,—The principal object of draining is to take away surplus water; but in effecting this other important benefits are secured. It is obvious that a larger quantity of water in the soil than is required for the support of the plants is injurious. It is injurious in various ways. That wet lands are cold and sour is a common expression, and an acquaintance with the principles which this condition of the soil involves shows that the popular idea is correct. It has been repeatedly proved that evaporation produces coldness; that in the exhalation of moisture heat is carried off, and this is one of the reasons why a wet soil is really a cold one. That such a soil is also sour is proved by the fact that vegetable matters form acids when decomposed in water. The sourness of peat may be taken as an example. Prof. Johnston observes, "When soils are soaked in water their vegetable matter either decomposes very slowly, or produces acid compounds more or less injurious to the plant, and even exerts injurious chemical reaction upon the earthy and saline constituents of the soil." One of the first objects in the production of any plant is to secure a temperature congenial to its habits. Every person may have observed that vegetation makes no progress till the weather becomes sufficiently warm. Different species of plants require different degrees of heat, but as a general rule those which grow in the lowest temperature are the least valuable.

The effect of drainage has been found highly favorable in raising the temperature of soils. Experiments have been made which proved that at seven inches below the surface the average degree of heat for thirty-six successive days, on a soil which had been underdrained and pulverized, was ten degrees higher than on a soil precisely similar that had not been drained and worked. The more rapid growth and perfect maturity of crops on drained land is doubtless attributable to the higher temperature thus obtained, and is an evidence of the great value of drainage in high latitudes where, from the shortness of the season, the results of the agricultural labours are peculiarly uncertain. It may be safely assumed that draining is the basis of the great improvement which has taken place in British husbandry within the last fifty years. In Canada the practice of draining systematically can hardly be said to be introduced. Various trials have, however, been made in different parts of the country; the subject is attracting great attention, and we may expect shortly to see the business carried on largely and profitably, provided we can obtain an Act to compel neighbours to make an outlet for farms lying above them similar to the one for surface water. It has been objected that drainage is less necessary here than in Britain, that in our drier climate crops are more liable to drought than moisture. To this it may be replied that proper drainage, with a thorough working of the soil, is the best possible protection against drought. A little observation will convince any person that those lands are most affected by drought which at some seasons of the year are too wet. Clays which are not drained keep the water so long on the surface that the soil runs together and forms a mortar, which, when the water is evaporated, becomes like sun-burnt bricks, unworkable and totally unfit for the growth of plants. On the hard pan soil the surface is completely saturated with water in spring, or in wet weather, the compact subsoil not permitting it to soak into the earth. In both cases the workable soil is usually thin, and as soon as drought comes on, the plants droop, and, "because they have not much root, they wither away." Crops on such soils are very precarious; the only bed for their roots at any time is the little portion moved by the plough, and it is but for a small part of time, comparatively, that even this is wholly available to them—it being almost always either too wet or too dry. The roots cannot perhaps penetrate the hard subsoil, or if they do are liable to be brought in contact with substances more or less poisonous to vegetation. The effect of drainage in such cases is to increase the depth of the soil, to render it more permeable to the roots and less liable to be affected by drought.

The first action of the drain is to take the water from that part of the soil with which it is in direct

contact. A contraction of the soil soon follows and cracks are formed, beginning at the drain and extending laterally and vertically, which admit the percolation of water and conduct it to the drain. When the soil is thus brought into a state which allows the water readily to pass through it, the former difficulties of its running together and baking are obviated, the soil remains open and friable, and plants are protected against extremes of wet and drought. It is a fact that plants suffer less from drought on a friable soil than on a compact one, as may be seen by a comparison of crops on clay and loam. This results from two causes: the roots of plants have more scope in a loose soil and are thus enabled to draw support from a greater source. A mellow soil is also most moist in time of drought, pulverization favouring the ascent of moisture from below as well as its absorption from the atmosphere. A heap of moulding sand will seldom dry except to a little depth, while hard clay in the same situation will become almost destitute of moisture. And it is now a proposition regarded among the best English and Scotch farmers as completely established, that drained land is not only better in wet seasons, but in dry seasons also.

E. B.

Broadcast and Drill-Sowing.

THE following is part of a discussion on the comparative merits of broadcast and drill-sowing of grain, which took place at a recent quarterly meeting of the Morayshire Farmers' Club, as reported in *The Farmer*, (Scottish) of May 20th, 1868.

"The Chairman said it was proposed that they should have some little discussion on the merits or demerits of drill-sowing compared with broadcast sowing; and he might initiate the discussion by stating his own experience and opinion. He had had a drill-sower in use for several years, and he thought it particularly well adapted for the generality of soils in Morayshire, and especially so for the farm of Spynie. In light soils the drill-sower deposited the seed equally and at a uniform depth. The braird comes up very regularly, and so equally distributed that for himself he was satisfied it was of great advantage to use the drill machine, provided they got a good implement. The one he used was made by Mr. Ben. Reid, Aberdeen. They made some little blunders at first, and even the second year, by making little bits of slips when turning the machine; but since then they had had the work most excellently done. There was a great saving of seed—about a bushel per acre. He thought they might calculate upon the same return after saving a bushel of seed upon what they would use with broadcast sowing.

"Mr. Walker, of Altyre, said he had no experience in drill-sowing, but he should like to hear the difference in seed and crop from the two systems. There was said to be a very considerable saving of seed, but he should like to hear the time and labour occupied by the drill-sower, so that they could know what actually was the profit of working it, and whether, by sowing thinner the crop is much heavier or lighter than it would be otherwise. Those who have experience might give them information on this point.

"Mr. Harris, Earnhill, said that for the last four years he had sown his wheat with a drill machine eight feet broad, and with the rods four inches asunder. He had gradually decreased the quantity of seed, and he must say his crop had as gradually increased in weight and quality. He had never used the drill for spring corn, for which he did not think it was of so much advantage, because it certainly took a long time to sow the drill, and whatever way they put down spring corn, it would grow. The seed took only a short time to germinate, and the land was so late in being prepared after turnips that there was really no time to lose. As to the time taken in sowing, that depended upon the machine. If the frame measured from seven to ten feet they could sow from ten to twelve acres a-day with a pair of horses, though that was certainly heavy work for the animals. He thought, however, that the time lost with the drill was thoroughly compensated for by the saving of seed effected. Before he got the drill-machine he used to give from three and a-half to four bushels of seed per acre. This year he sowed wheat with two bushels per acre. He thought he had made a great mistake when he saw the braird rising, and too much black land appearing to the sight; but that morning he walked through the field, and however the crop might turn out, he did not think it would fail for want of plants. There was one thing to take into consideration in sowing ten or twelve acres a-day with the drill machine—namely, that they were conducting three operations at once. They were depositing the seed, they were packing the land, and at the same time saving a harrowing; so that he did not know that the labour would be found to be greater than by sowing with a broadcast machine or in any other manner, while certainly the saving of seed was considerable.

"Mr. Patterson, Mulben, said his practice for the last eight or nine years had been to sow with a broadcast machine, but last year on the farm of Lennox, in Dallas, he introduced a one-horse drill-sower, made by Mr. Benjamin Reid, Aberdeen. There were about three or four acres of very steep land, which the men sowed with the hand, and in which they put down six bushels to the acre. The rest of the field, about the same in breadth, was sown by the drill, and only got three bushels to the acre. Three very practical men asked his leave to go into the field and examine the two crops, and they reported to him that the part sown by the drill with three bushels of seed was a better crop, more equally grown, and thicker than the other. He had gone on with the drill this year, and so far as he could see it was an advantage. He had not, however, as yet adopted the drill machine at Mulben.

"Mr. Walker—You say the land sown by the hand was steep, but was the quality of the land equal in both cases?

"Mr. Paterson—The part sown by the hand was a much better sort than the other part. He did not thrash out the crops separately and measure them; he only took an estimate of them by the eye. The gentlemen who took the trouble to go over the field, however, were also perfectly satisfied that the difference in the crop was in favour of the part sown by the machine.

"Mr. Garden, Grangegreen, said he had sown his corn with the drill machine this year only, and he was very much pleased with the braird that was coming up. The machine saved about a bushel an acre of seed, but unless the crop turned out satisfactory he would not give much consideration to that. The drill certainly involved very much more labour, but still, with a little activity, they could get over that. He sowed about sixteen acres a day with different relays of horses. He put a man to manage the steering machine, and also a man to walk behind to see that the machine wrought properly. This supervision was very necessary to see that the work was well done, because he would not on any account have his fields sown in the way he saw some done by the drill machine.

"Mr. Yool, Coulart Bank, said he had used a drill machine for eight years, having got it from East Lothian. It had eight inches between the coulters. He had made no rigid experiments to ascertain whether the broadcast or drill-sowing was most profitable, or made the greatest returns; but, judging from the appearance on fair good land in good condition, he had no hesitation in saying that the eight-inch drill had been satisfactory and amply remunerative. On very light land he thought eight inches was too great a distance for the drills to be apart. They could not make the seed cover the land where the soil was light, but where there was good land they could cover it. There was certainly a saving of one bushel per acre on the seed. He did not think that the labour was very much more; and he quite agreed with Mr. Harris that the drill-sower accomplishes one or two other operations. It consolidated the land and saved harrowing. If they could get the drill machine, with a frame attached to the back containing a grass-sower, as he believed they had in Aberdeen, it would be a great saving. The grass being deposited at the same time as the grain, would save an after broadcast sowing with a machine or by hand. He intended to get next year a machine with a narrow drill for his light land. He had a very good example of the advantage of sowing with the drill on a field verging on a piece of blowing sand. He drilled the good land, and sowed the light land broadcast. Two or three days afterwards, a very strong breeze set in, and very soon the broadcast sown seed was left bare; while on the drill-sown part immediately verging upon it there was not so much as a single seed visible on the surface, and on scraping away the earth to the depth of about half an inch the braird was found coming on finely. If the part where the seed was blown had been drilled with a narrow drill, it would have been all saved. He had no doubt that much of the seed thus exposed would never germinate, for it was just beginning to spring when several dry days came, which, together with the exposure, would prevent it germinating. He found with drill-sowing that though the corn did lodge, it did not go down so flat as it would do if sown broadcast. The root had a firmer hold on the ground, and though the crop was blown over, it did not lie so closely at the root as to let it lodge compactly on the ground, and prevent it from ripening. That was a very considerable advantage on a farm with a quantity of good land. He thought it would be very desirable that some members should make rigid experiments on as good land as could be got. Impressions from merely looking at the crops were all very well, but until they got the thing measured and weighed they could not be sure. He might say that he sowed spring corn as well as wheat in the autumn with the drill, and he thought it was a great advantage in both cases."

Cultivation of the Beet for Sugar.

A French literary *savan*, M. Merais, lately presented to the Academy of Sciences of Paris, a paper on the cultivation of the beet for sugar, which propounds a theory worthy to be labelled "important if true." Moreover there is great probability that it is true, for it seems reasonable. The leading features of this scientific theory are given as follows in *The Grocer*:

"The results at which M. Merais arrives are, that if in the choice of seed plants care be taken to reproduce those roots which are richest in sugar, the result will be the production of a radical type somewhat concave in form, with large hollow neck, carrying several heads; such in fact are the characteristics which distinguish the variety obtained under such conditions by M. Louis Vilmorin. But if such roots possess the grand advantage of richness in sugar, they have the grave inconvenience of yielding but a poor weight per acre, and also of striking many lateral roots, which are equally inconvenient for cultivation and sugar-making. If, on the other hand, those beets are chosen for seed which are roundest, heaviest, and have the fewest roots, which is the common practice of farmers in order to obtain as heavy a crop as possible, the result will be the finest roots to look at and the poorest in sugar.

"The grand object, says M. Merais, in order to improve the beet with a view both to the culture and the manufacture, is to obtain at the lowest cost possible the maximum of extractible sugar per acre, and for this purpose it is necessary to study carefully all the conditions of the case:—1. The richness of the roots in sugar. 2. The weight of the crop per acre. 3. The purity of the juice, and especially the quantity of foreign salts which the roots contain. 4. The proportions of pulp to juice, taking into account the modes of extraction. 5. The convenience of cultivation and manufacture. It is very probable that in pursuing this course we may arrive at a type of beet intermediate between that which has great tap roots and that which has scarcely more than a few threads, and also perhaps at an average form of root, such as the conical or slightly bulging form."

Salt as a Manure.

A CORRESPONDENT sends in the following clipping from a local paper, with a request that we would give it a wider circulation by inserting it in the CANADA FARMER. The communication is addressed to the *Goderich Signal*, and is as follows:—

Thinking the following extracts from Mr. Johnston's book of lectures on Agricultural Chemistry would be beneficial to the Farmers of Huron, by showing them experiments which have been actually tried in the old country—I send you them. Mr. Johnston says:—The use of salt as a manure has been long recommended; it is still extensively and *profitably* applied to the land. Some of the most carefully observed results which have hitherto been published are contained in the following table:—

Locality & Grower.	*Produce per acre.*				*Quantity per acre and kind of soil.*
	Unsalted.		*Salted.*		*Bushels.*
Essex; G. Sinclair, Upon Wheat.....	16½	bushels	22¾	bus	11 after Barley.
	11½	"	21	"	5½ " Beans.
	16	"	17¾	"	Sown with seed after Peas.
	12	"	28½	"	5½ applied after sowing—after turnips.
Suffolk; Wm. Ranson on Barley	30	"	51	"	16.
Near Richmond, at Aska Hall on hay.	tons.	cwt.	tons	cwt	
	2	10	3	12	5, on thin light soil, with clay sub-soil.
	2	10	2	12	5, light soil on gr'l.

Now, there are certain localities in which we can say beforehand that salt is likely to be abundant in the soil. Such are the lands that lie along the sea coast, or which are exposed to the action of prevailing sea winds. Over such districts the spray of the sea is constantly borne by the winds, and strewed upon the land, or is lifted high in the air, from which it descends afterwards in the rain. (Dr. Madden has calculated that the quantity of rain which falls at Penicuick in a year brings down upon each acre more than six hundred pounds of salt.) This consideration, therefore, affords us the important practical rule with regard to the application of salt as a manure, viz:—*that it is most likely to be beneficial in spots which are remote from the sea, or are sheltered from the prevailing sea winds.*

THOS. WEATHERALD.

Goderich, June 4, 1868.

Root Crops and their Management.

MR. ATTCHISON, Abinger Hall Farm, Surrey, writes in *Bell's Messenger*, as follows, on this subject:—"The first and most important point is the preparation of the soil. In all cases that should be done, if possible, in the autumn. Have the land well cleaned, the farm-yard manure carted out, and ploughed and subsoiled, or cultivated deep by steam, before the frost sets in; and only use the cultivator and harrows in the spring. Then, with two or three hundred weight of guano per acre, you stand the prospect of a good crop of roots. The safest and best for the south is mangold-wurtzel and kohl-rabi. I have fourteen acres of them mixed, two rows each; and six acres of carrots, mangolds, and kohl-rabi all mixed, and have had 125 sheep feeding on them since the beginning of October. They will last them three months, and I have never seen sheep do better. They are all cut up by the turnip cutter and mixed; for fattening stock do better with a mixture, and you can grow more produce of a better quality. It may not look so well to the eye, but it is much better for the pocket and the farmer's profits and the health of his stock. I have stored all our other mangolds, and the kohl-rabi I intend to feed off by sheep. There are no roots that you can grow that sheep do so well on as kohl-rabi. They should all be sown by the end of April, and you can get any quantity per acre, by using plenty of manure; as they are like mangolds, you cannot give them too much. I used only two and a half hundred weight of Phospho-guano, and four hundred weight of salt per acre, and well horse-hoed and stirred the soil to let in the air; and hand-hoed them to keep them clean. The land, when fed off with half the crop, will be in a very high state of condition, and fit to grow anything you wish to put on it."

Weeding Potatoes with Sheep.

IT may not be known to farmers in general that it is a common practice in some of the potato-growing districts to turn flocks of sheep into the potato fields for the purpose of eating down the weeds. The sheep will not touch a potato vine; they can not be starved into eating them. This Pasturing with sheep is very advantageous when the crop is a late planted one, so that the hoeing cannot be completed until the hoeing or harvest is finished. At the growing season it is the planter's aim to keep down the grass and weeds so that they may be covered with dirt by the cultivator and hoe, when these are used. Pasturing with sheep will attain this object. Early planted crops, the cultivation of which is completed in the first half of the summer, frequently become grassy and weedy before the time of digging—when the size of the tops precludes cultivation. In this stage the sheep are economical weeders. It is hardly necessary to mention that the food thus given to the sheep makes a double profit, inasmuch as it costs absolutely nothing, while labor is saved and weeds prevented from seeding in the crop.—*Rural.*

Burdock.

No good farmer will allow this coarse and disagreeable weed to flourish on his farm. After a few plants have been allowed to go to seed, a long time will elapse before they can be exterminated. As burdock is a biennial plat, the seeds germinate one season and produce seed the next. After this, the root and all dies. Burdock is seldom seen in cultivated fields. In neglected nooks, where the ground is rich and bare, burdock will supplant everything else.

The best way to eradicate the plant is to cut it away with sharp hoes, two or more inches below the surface of the ground, late in autumn, when the water will enter the roots and destroy them. If the ground where they grow can be ploughed, they may be easily exterminated, unless there is much seed in the soil, which a few years of cultivation will destroy by vegetation.

At this season of the year, burdock plants may be seen in many nooks, spreading their broad leaves over an area of ground, allowing no other plant to live beneath them. If they be cut off, there will be sufficient vital energy in the roots to send up a new system of stems, which will produce a bountiful crop of seed before winter. But cut them off a little below the surface of the ground with a sharp broad hoe, or grubbing hoe, or mattock, and put a table spoonful of salt on the top of the tap root, and burdock will never sprout from such roots.—*Ex.*

A Somersetshire Stile.

A CORRESPONDENT in the *Cottage Gardener* sends the following illustrated descriptions of a kind of stile which appears easy of construction, and effectual against larger animals, though it would be of little use against sheep and pigs:—

"As the merits of the Cornish stile have been discussed in the last few numbers of your journal, I venture to call attention to an invention of my own, which I have had in use for nearly two years, and which has been found to answer every purpose for which a stile is required, even to a free passage of your correspondent's 'departed crinoline.'

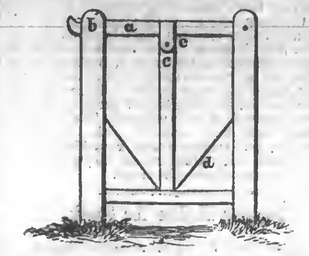


FIG. 1.

"You will observe from the above engraving (*fig.* 1) that it is very simple in construction, and entirely self-acting. It has no fastening, as the cross-bar (*a*), after being lifted up for the person to pass through, falls back to its place in a slit in the post (*b*) by its own weight, so that it cannot be left open, a great desideratum in stiles and gates of all kinds.

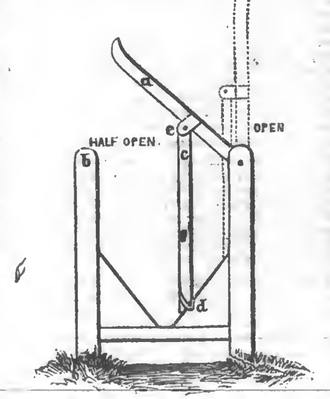


FIG. 2.

"When the bar (*a*) is lifted up (see *fig.* 2), the pendant (*c*) turning on the pivot (*e*) naturally rises with it, and runs up to the bar (*d*), to which it is fastened by a ring at the bottom, thus leaving a perfectly clear space between the posts for a person to pass through. The stiles are made of iron and wood as required, and are found to answer well in other places besides this, as the orders now rapidly coming in abundantly testify. It is patented."

Plaster for the Hop Aphis.

MR. F. COLLINS, of Rochester, N.Y., a gentleman thoroughly conversant with hop culture, and patentee of the best system of training the plants we know of, strongly urges all engaged in the business of hop-raising to be ready with plaster to avert the ravages of the aphis by a thorough dusting of the vines at the first appearance of this insect pest. He says that simple as this remedy is, it is entirely effectual. Indeed the remedy is even more simple than appears at first sight, inasmuch as common road dust will answer the same purpose as the plaster so far as the insects are concerned, but plaster is to be preferred because it not only destroys the aphis, but benefits the plant. He mentions in confirmation of his statements, that a number of hop-yards lying under the lee of a railroad, and swept during the summer by its clouds of fine dust, were entirely free from aphis, and produced fine crops, while yards at some distance from the track were badly infested, and the product destroyed.

On Drying Corn in Sheaves.

THE following extract is well worth the attention of both landlord and farmer:—"Mr. Stephens, of Edinburgh, communicates to the *Journal of Agriculture*—'The simplest method of securing the crop after cutting it down from being damaged by standing long in stooks on the ground, is that universally practised by the agriculturist in the woody parts of Sweden and Norway, and which never fails in completely protecting at least nine-tenths of the grain from growing in the sheaf, as well as the straw from any serious injury. In those districts every farmer provides as many *sades stor*, corn stakes (that is stakes for drying the grain on), as will be necessary for the quantity of his growing crop. They are generally made of young white pine, eight feet long, about one and a-half inch diameter at the top and four inches at the bottom. The upper end is pointed, to allow the sheaf to pass easily down over it, and the lower end is likewise pointed to facilitate its being fixed in the ground. When a field of grain is ready for the sickle, the stakes are conveyed to the spot, and the reapers proceed with the work; the stakes are put up in rows behind them, in the same manner and at the same distance from each other as is common in stooking the crop. A man, with the assistance of an iron crane or spit, will set up five hundred of these in a day. The next operation is to put the sheaves on the stack. This is performed by raising the first sheaf up to the top of the stake and passing it, with the root end downwards, to the ground, the stake being kept as nearly as possible in the middle of the sheaf. The sheaf then stands perpendicular and round the stakes. The second sheaf is fixed on the stake in an inclined position, with the grain end sloping a little downwards, the stake passing through the sheaf at the band in a transverse manner, and in that position it is pressed down to the first sheaf, and thus forms a covering to it. All the other sheaves are threaded on to the stake in a similar way as the first sheaf put on, keeping them all one above another, with the root-ends facing the south-west to receive as much of the sunshine as possible, on account of the greater quantity of grassy substance they contain at the end. As each sheaf thus acts as a covering to the one beneath it, and as there is only one that can touch the ground, rain cannot at any time penetrate through them, and it is very rare that any single heads of grain on a stake are injured. I have witnessed these operations performed with as much expedition as actually attends the common way of setting the crop in the field in stooks. The number of sheaves put upon each stake is generally fifteen or sixteen. The advantages arising from the above simple manner of protecting the crop are many, exclusive of the consideration of the grain and straw being preserved in a wholesome state. The farmer by it is enabled to commence reaping early in the morning while the dew is yet on the grain. Partial rainy weather does not prevent his operations; he can employ all his people in cutting down the crop before carrying home part of it, and when he does commence carrying it home not the least particle is shaken out, for, instead of throwing a single sheaf into the corn cart or waggon at a time (by which much grain is frequently lost), the stake with the whole of its contents is taken up, put into the cart, and carried to the corn-yard. When the crop is all carried home the stakes are collected and laid aside to be similarly applied the succeeding year, and when carefully kept during the period they are in use they will last twenty or thirty years. I have known many farmers residing on the plains of Sweden, where wood is extremely scarce, who, rather than be without such preservatives of their crop, choose to purchase them at a dear rate and transport them thirty or forty miles to their possessions. Indeed, the practice of staking the grain is there so general and so beneficial that the number of stakes used is often taken notice of when a lot of land is offered for sale.'" The above method of securing the crop during a wet season is so well adapted for our variable climate, and being cheap, simple, and efficient, it must be the stupid adherence to old habits that hinders our farmers from adopting such a mode. I believe in some parts of Aberdeenshire it is adopted during wet seasons with success, though many projects made of late induce me to think that a lesson might be taken from Norwegian and Swedish farming.—J. KERR, Galashiels, in *Inverness Courier.*

Stock Department.

A Sensible Proposition.

"G. G." (George Geddes), one of the *Country Gentleman's* most prolific correspondents, an old country man by the way, proposes as one measure which would tend greatly to the improvement of farm stock, that a tax be levied on all stallions, bulls, rams, and boars." He says:

"If every horse colt not altered when a year old entailed a tax of $20 per year upon his owner—if every bull calf of six months old had to pay $5, and the same per annum afterwards, and every ram lamb and boar pig were taxable at $2 per year, commencing at three months of age—it would "do away" with most of the worthless brutes, and in five years' time the live stock would be worth very many millions more, and in the course of a few generations there would be nothing living but had some good blood in it, for the dullest of farmers would not pay taxes on the hideous objects which now rove around."

We entirely concur with "G. G." and cheerfully help to pass his proposition round, in the hope that our legislators may profit by it, and aid in abating the masculine nuisance in question. The great proportion of the wretched creatures referred to are of no earthly use to their owners, and their existence tends more than any other one circumstance to perpetuate worthless kinds of stock. In consequence of accidents which will happen in the best regulated families, great damage is done to better bred animals by unlucky crosses, which to all careful, intelligent farmers, are indeed "crosses" in more senses than one.

Nutritive Value of Food for Cattle.

The following table will afford some valuable suggestive information. It shows the nutritive value of several kinds of food—first according to theory or from analysis, and secondly according to the average of several different experiments. The figures given represent the quantity in pounds to be taken of each kind in order to reach a standard of nutrition—as, for instance, that of hay:—

	Value by Analysis.	*Value by Experiment.*
Good Hay	100	100
Wheat	47	43
Peas	20	44
Beans	29	46
Rye	58	49
Barley	65	51
Indian Corn	70	56
Oats	60	59
Buckwheat	74	64
Linseed Oil-Cake	22	66
Red Clover Hay (well cured)	77	95
Potatoes	324	195
Oat Straw	364	220
Ruta-Bagas	676	262
Carrots	412	280
Field Beets	291	346
Rye Straw	502	355

One of the most valuable substances for the food of cows in winter is *bean meal*. Fed upon it, with hay, although giving less milk than when fed upon grass, they have actually yielded more butter. Bean meal is particularly valuable for the production of cheese. In using it the meal should be diluted with bran, cut food, or Indian meal.

The foregoing calculations have been still more simplified by the following condensed statement of the "constituents of feeding materials." Perhaps from it a better idea may be obtained of the proportionate value of various kinds of food:—

PARTS IN 100.

	Real Food.	*Water.*	*Ash.*
Beans	82½	14	3½
Peas	60	16	3½
Oil Cake	75½	17	7½
Swedes	14	85	1
Turnips	10	89	1
Mangolds	10	89	1
Carrots	12	87	1
Common Hay	76½	16	7½

One pound of flesh, it is said, will be produced, under favourable circumstances, by the consumption of

Turnips	160 lbs.	Milk	25 lbs.
Potatoes	50 "	Oat Meal	9 "
Peas	3½ "	Flour	7½ "
Beans	4 "	Barley Meal	7 "

The Descendants of Captain Cook's Pig.

The native (Maori) saying is, "As the white man's rat has driven away the native rat, as the European fly drives away our own fly, and the clover kills our fern, so will the Maoris disappear before the white man himself." It is wonderful to behold the botanical and zoological changes which have taken place since Capt. Cook set his foot in New Zealand. Some pigs which he left with the natives have increased and ran wild in such a way that it is impossible to destroy them. There are large tracts of the country where they reign supreme. The soil looks as if it were ploughed by their burrowing. Some stationholders of 100,000 acres have had to make contracts for killing them at 6d. per tail, and as many as 22,000, on a single run, have been killed by adventurous parties, without any diminution being discernible. Not only are they obnoxious by occupying the ground which the sheep-farmer needs for his flocks, but they assiduously follow the ewes when lambing, and devour the poor lambs as soon as they make their appearance. They do not exist on the western side of the Alps, and only on the lower grounds on the eastern side, where the snow seldom falls; so that the explorer has not the advantage of profiting by their existence where food is the scarcest. The boars are sometimes very large, covered with long black bristles, and have enormous tusks, resembling closely the wild boars of the Ardennes, and they are equally savage and courageous.—*Dr. Haast.*

Summer Shelter for Stock.

Mid-summer, and during the months of August and September, we shall probably have much hot and sultry weather. Give therefore a little attention to your stock, in the way of preparing a temporary shed in the pasture, as a shelter from the scorching heat of September sun. Trees, which are more or less common in all pastures, afford a good shade, but a cheap temporary shed is even better, and especially if there is no other protection. An open shed, through which the air will freely pass, and near a brook if possible, should be erected and provided with boxes for holding salt, that the cattle may partake of it at pleasure. In the middle of these hot summer days they will not eat, and how much better and more humane for the farmer to build such a shed in which they can lie and rest themselves. Sheep especially, as well as milch cows, need such a protection. Cattle should also be stabled, these nights in August and September, in a cool and well ventilated place. A shed built in a pasture would cost but a trifle, and could be taken down after the weather became cool.—*Cor. Dixie Farmer.*

Live and Dead Weight in Sheep.—The English rule is to weigh sheep when fatted, and divide the weight by seven and call it quarters. Thus, sheep weighing one hundred and forty pounds, would give twenty pounds a quarter as the dead weight. If the sheep are in good condition, this rule is sufficient for all purposes. Poor sheep will fall below the mark, and extra fat ones go over it.

Free Martins.—It has been the general opinion, and I certainly must say that I was of very strong opinion myself, that Free Martins do not breed, but I am now entirely convinced to the contrary, from the following fact:—Young Duchess, a full blood Durham, was a twin with a bull calved August 20th, 1865, got by Butterfly 2d [91,] Canada Herd-Book, served August, 1867, and on 5th of June, 1868, she bred a heifer calf, which she is now suckling. Duchess, the dam of young Duchess, was bred by the late Hon. Adam Fergusson, Woodhill, Ont., was calved July 1st, 1850, making her 15 years old when she bred these twins. She has been a pretty regular breeder, breeding twins in 1859 to Ethelbert, [234], Canada Herd-Book. Jos. Kirby. *Milton, Canada.*

Veterinary Department.

Swelled Legs.

Regulation of the diet is an essential part of the treatment of swelled legs, and especially of that form of the disease which was last described, as affecting "grass" horses—animals whose systems have become deranged in consequence of injudicious feeding with indigestible material, or with ordinary aliment in quantities disproportioned to the animal's requirements. To correctly adjust the supply of nutriment to the amount of waste of tissue is not easy, but it is nevertheless of great importance in the treatment of the morbid condition of which swelled legs is one of the consequences. No difficulty would be encountered if it were only necessary, in dealing with a plethoric animal, to reduce the condition; active depletive measures would effect this object in a short time; but, while under such treatment the swelling of the extremities would quickly but temporarily subside, the debility which would result would certainly tend to increase the disease. So far from there being a necessity for depletive treatment, the animal must be looked upon as already in a condition of weakness. Despite the increase of bulk, there is a want of energy and activity in the functions, due to the enervating influence of rest and repletion. Excessive deposition of fat is scarcely compatible with a state of health under any circumstances; and when it is traceable to improper diet and inaction, it is always associated with debility and disordered nutrition. Therefore it is necessary to adopt a system of dietetics and exercise calculated to diminish the animal's bulk, by causing the removal of superfluous fat, to improve the tone of the muscular system by exercise, and to supply the necessary quantity of nutriment in the most easily digestible form. The value of any kind of food cannot be determined by merely calculating the exact amount of azotised matters which it contains. It is possible that the nutritious principles may be so combined with other constituents as not to be capable of being assimilated. For this reason we object to the use of beans for animals in a debilitated condition, whether plethoric or emaciated; large quantities of straw are similarly detrimental; and for "grass" animals food which is rich in fat-forming constituents must be avoided. Oats, with a small proportion of bran and old hay, with green food or roots to be added as alteratives, will constitute a liberal and safe *régime*. Exercise must be gradually increased as the condition improves, and there is no better test of improvement than the restoration of firmness to the flaccid muscles. Meanwhile the occasional use of a mild dose of laxative medicine will be beneficial, and once or twice a week two drachms of powdered nitre may be given in a mash. If the swollen legs are complicated with cracked heels or grease, the treatment which has been suggested for these diseases in previous articles may be used; but if no discharge or wound exists, the local treatment should consist of frictions and bandaging when no heat or pain are present, and of warm fomentation, followed by sedative lotions, if the swelling is tense and the limb tender to the touch. Perseverance and patience will, in perhaps the majority of cases, be rewarded; but it must be admitted that obstinate cases of chronic swelled legs are not uncommon. No treatment seems to make any impression in such instances, and the skin of the swollen extremity ultimately becomes thickened permanently by a deposit of fibrinous material, that may be said to form a part of the organism. Animals affected in this way, however, generally belong to the poorer equine classes; and, if the progress of the disease could be traced, it would in most instances be found that the malady had been neglected in its early stage. Instances, nevertheless, are now and then met with in well-kept and tolerably well-bred horses, which are said to be "humourry," just as among human beings we find persons afflicted with a tendency to scrofula, or consumption, or gout. And in dealing with such subjects the most that can be expected is that, by careful treatment and avoidance of all causes which are likely to develope the predisposition, the tendency may be so checked as not to seriously inconvenience the individual or the animal. It will be apparent, from a review of what has been stated upon the subject of swelled legs, that the affection cannot be treated as a generic one. Each case will present certain peculiarities which require to be noticed, and, as the condition of the limbs may depend upon quite opposite states of the system, it is necessary to determine, previous to attempting a cure, to what causes the swellings are attributable. Upon this principle the owner of a horse, on being informed that the animal is suffering from swelled legs, instead of at once directing the administration of a dose of physic or a diuretic ball, will proceed to the stable, carefully inspect the patient, and minutely inquire into the details of his recent treatment. A number of circumstances will have to be considered. If the horse has been severely worked for the past few weeks, and has fallen off in condition, if the appetite is bad, the coat harsh, and the skin adherent to the subjacent tissues, it is evident that debility is the primary cause of the swelled legs, and on examining the enlargements they will be found generally to be dropsical in character. Should it appear that the animal's health is more decidedly affected, and indications of acute disease are present, the swelling of the extremities will be no more than one of the signs of general derangement, and will not, therefore, be the primary object of concern. When one limb only is attacked, and the swelling is hot and painful, a careful exam-

ination of the heels, and even the foot, should be made, to ascertain if cracked heels exist, or if there are any signs of grease or thrush, either of which may be connected with the tumefaction. The possibility of injury, such as a contusion or sprain, having occurred, must also be taken into account. None of these diseases being present, it will be fair to infer that the swelling depends upon the localization of a morbid state of the system. This case would be an illustration of what is termed the "humoury condition." It may be that the subject of the swelled legs is fat, and habitually inactive; in such cases the enlargement will be due to congestion or inflammation, to which the plethoric system is naturally predisposed. All these varieties of swelled legs will require local and general treatment adapted to the peculiarities of each individual case. Hence it must be apparent that the term "swelled legs," as applied to engorgement of the extremities, or any of them, is not in itself expressive of the nature of the disease, nor suggestive of a plan of treatment; and it is not improbable that the absence of discrimination in dealing with these affections, as though they all belonged to one class and could be cured by a uniform remedial method, is one cause of their frequent degeneration into a chronic form of disease which is incurable.—*The Field.*

Veterinary Queries.

A Correspondent submits the following cases for our opinion:—

"Can you account for the fact, that when gestation exceeds a year, foals seldom or never do well, while calves, under similar circumstances, are as strong as others?

"Please say what is the matter with a mare.—About two months ago she, along with three other horses, was turned out for exercise. Joining two year old colts, belonging to a neighbour, they ran about a good deal through the fields. In the evening she came home quite lame of the near fore leg, and resting the toe, but with no external marks of injury Thinking that the rest would restore her, we let her alone, but she limps now as bad as ever. In what part of the shoulder is the injury likley to be, and can any remedy be applied?"

Ans.—The usual period of gestation in mares is eleven months, and it is very rare that it extends over a year.

Judging from the pointing of the foot, we are of opinion that the lameness is not in the shoulder but lower down, probably within the foot. We would recommend you to have the mare examined by a competent veterinary surgeon.

The Dairy.

Milk and Dairies.

On the 2nd July last we had the pleasure of visiting and inspecting one of the dairy farms from which Messrs. J. & J. L. Burney, of 70½ Queen Street west, receive a large quantity of the milk with which, for the last year, they have been supplying the city of Toronto. The farm referred to is that of Messrs. N. J. Campbell and Brothers, situated in the township of Nelson and county of Halton, about three miles from the line of the Great Western Railway. The Messrs. Campbell were formerly engaged very largely in the manufacture of cheese according to the factory system, and had gained a reputation in that line. Latterly, however, having made arrangements with Messrs. Burney for sending them all their milk, they have given up cheese-making, bought a large number of first-class milch cows, which they have added to their former stock, and turned their farm, which consists of about 700 acres of good land, into pasture. The land is naturally well suited for dairy purposes. The pasturage is excellent, and a never failing stream of pure water runs through it. The Messrs. Campbell, intending, henceforth, to devote their whole time to the business of supplying the city with milk, through Messrs. Burney, have got all their arrangements put into the nicest order.

In the first place, all the water required on the premises is brought from the stream mentioned above. The water is by means of a force-pump connected with a water-wheel, which is placed in the stream and kept in motion by the current, raised through pipes to the height of 160 feet over a perpendicular bank. The piping is then continued for a distance of about half a mile, ending in a cistern in the building where the milk is kept. In this building there are two vats. One of these is a double one, the outer being formed of wood and the inner of zinc. The zinc part of this vat is so constructed that it is placed in the wooden part so as to leave a space of about four inches all round it. This space is filled with cold water, and, morning and evening, when the cattle, after having been fastened in an adjoining building, are milked, each pail is carried in and poured into a strainer extended across one end of the vat. The milk falls on the zinc bottom and runs slowly, by a gentle incline, down to the other end and through a tap into ten-gallon cans, which are ready to receive it. By passing slowly over the bottom of the vat, the animal heat is driven out of the milk by means of the cold water beneath the zinc. The other vat is built of brick and filled with ice water, into which the cans of milk are placed and allowed to remain, becoming further cooled, until the morning, when they are taken to a flag station of the Great Western Railway, and put on board a car for the city. After arriving in the city the milk is again put in ice-water, except such as is allowed to become sufficiently warm to raise cream. The cooling process through which the milk goes prevents the cream forming on the top, so that on looking in the morning, no sign of cream can be detected; but it remains distributed throughout the milk. It is evident, therefore, that milk cooled in this way is far richer than such as has not undergone this process. The Messrs. Burney have a similar establishment in the township of Trafalgar. They are about building a large reservoir at their establishment, in which they will keep a supply of water to be forced into it by means of horse-power, through pipes extending into the lake. The Messrs. Campbell also intend getting a steam engine for the purpose of cutting and steaming the food for their cattle during the winter. It will thus be seen that both these establishments are of a very extensive character. The Messrs. Burney are daily receiving over two hundred gallons of milk, one hundred and fifty of which are from the establishment of the Messrs. Campbell, and they intend to keep up the supply to their customers all winter. From a personal inspection we can assure our citizens that everything is conducted with a scrupulous regard to cleanliness.

This matter of receiving an ample supply of pure milk is receiving a great deal of encouragement from a large number of the medical men of the city, and the poor as well as the rich can avail themselves of the advantage, as it is sold at a price as low as the lowest in town. The arrangements described above were patented this spring by the Messrs. Burney, so that persons wishing to use them in any other part of the country will be obliged to purchase the right from them. There is another milk dairy in the township of Nelson, conducted in the same way by Mr. T. D. Harrison, who has the right for the County of Wentworth, and supplies the city of Hamilton.

☞ Francis Gowdy, of Vermont, says that he has a cow that gives forty quarts of milk daily. The fifth chapter of Acts contains a story that may be of interest to Francis.

Learned Pigs.—The Dayton (Ohio) *Journal* tells the following story of three learned pigs:—Wm. Huskot, who resides on Wayne Street, in this city, has a fresh milch cow which suddenly and unaccountably quit letting down her milk, recently. As the habits of the cow were regular and she did not go away from home far enough to get milked by parties who are given to that practice, Mr. H. could not account for the failure of the animal to yield her accustomed quantity of lacteal fluid. But he determined to find out if such a thing were possible, and set a boy to watch the cow. In the course of an hour or two, the boy had solved the problem. A trio of pigs, not half grown, approached the cow, one after the other, taking turns, and stripped her bag of milk. The milking was performed in a business sort of a way, rather gingerly, and the cow rather liked it. Mr. Huskot didn't like it, and took measures to prevent its repetition.

Irish Butter.—Once upon a time, and not so long ago either, Irish butter enjoyed a very enviable reputation in the market, but it has suffered exceedingly in public estimation owing to the practice of excessive salting, or "loading," as it is called by dealers, to increase weight. A butter factor was recently fined £2 by the Lord Mayor of Dublin for selling butter fraudulently made up. On being subjected to analysis it was found to contain in 100 parts: butter 62, water 5, salt 33—total 100. It is said that several pence per pound are now lost by Irish dairymen in the price they receive, owing to the degree in which confidence has been lost in the quality of the article they send across the channel.

Poultry Yard.

Poultry Culture.

In the course of the investigations conducted under the auspices of the British Society of Arts, with a view to augment the food supply for the increasing population of Great Britain, and especially of the metropolis and other large towns, an interesting paper was read before the Food Committee of the above society, by Mr. George Manning, on "Poultry Culture." The substance of his remarks is thus given in the *North British Agriculturist*:

"In looking for new sources and for the further development of the old means of animal food, I cannot but think poultry claims our attention before many others, as having once formed an important part of our meat supply, as being simple and inexpensive in culture, and everywhere ready to hand. Of late years, however, poultry has fallen into neglect; and this kind of meat can now be procured at such prices only as to render it an expensive luxury rather than a reasonable portion of daily food. The farmyard seems to be the proper home of the rasorial order of birds; yet it is here that the neglect is most evident, whilst farmers for the most part deny the usefulness of this portion of stock, and tolerate it only from habit. It is not only the farmer, however, who raises objections to this kind of food. The consumer has certain prejudices. On the part of the farmer it is said:—

1. That poultry stock does not pay.
2. That even if it did pay it is too unimportant to engage his attention.
3. That it damages the stackyard.
4. That it is injurious to the crops.

On the part of the consumer it is urged:—

1. That the retail price of poultry is such as to place it out of the list of daily foods.
2. That, even if it can be produced at reasonable prices, it is a poor substitute for butchers' meat, and does not contain sufficient animal nourishment.

If poultry-keeping does not pay, and under existing circumstances, in the majority of cases, it probably does not, the reasons are to be found in the following facts:—

1. That no attention is paid to the choice and management of stock.
2. That food is irregularly and wastefully administered to it.
3. That no regard is had to the roosting, and particularly to the laying places of hens.
4. That the demand is restricted by the market system.
5. That farmers' wives have ceased to be henwives.

With regard to the choice management of stock in poultry, we find on farms generally, mongrel-bred birds, which, from continued in-breeding, have deteriorated in size and stamina. The barndoor fowl of the olden time has changed, particularly within the last few years, becoming continually less useful for food. It is true that the barndoor fowl was always a mongrel; but when farmyards were the nurseries of fighting cocks, where landlords, by covenant inserted in the leases, required the tenants to "walk" a game cock, or number of cockereis, and tenant-farmers bred birds for the pit on their own account, there was a continued infusion of new and vigorous blood into the progeny of the hens that stocked the yard. That custom has happily nearly passed away. The deterioration, however, began by the loss of these high-bred cock birds. Again, when the fall and a careless system of farming made the barndoor a golden feeding-ground, chickens had opportunities of growth which they now have not, and which must be supplied to them more economically and judiciously by hand if rearing poultry is to be profitable.

This plan, however, has been neglected; for poultry, unlike other farm stock, has not only not advanced, but has gone back in value, and consequently in estimation. The average weight of barndoor fowls sold from farmyards is three and a half pounds. From this must be deducted three ounces for feathers and twelve ounces for offal before they become food. The game-cock, as bred for the pit, rarely exceed four and a half pounds; but by crossing with the Malay, they may be brought to six or seven pounds in weight. Dorkings, when not in-bred, but well and carefully fed as chickens, will reach to seven and a half pounds as pullets, and to nine pounds as cockerels; higher weights, such as ten pounds for hens, and twelve pounds for cocks, can be obtained, but these are exceptional. Dorkings, however, are not suited for cold clays and damp soils. Of food birds, besides Dorkings, the game and the large Surrey and Sussex fowls (which last always command a high price,) there are the 'Brahma Pootra fowl and the Houdan or French Dorking, well adapted for use. Of these the Dorking and Surrey fowls are beyond all question the best for the table, in delicacy and weight of flesh; the game the most savory, although deficient in size; the Brahma Pootra not so delicate in flavour as the others, but hardy, weighty, and easily fattened; the Houdan having the good without the bad qualities of the Dorking—precocious and small-boned, being non-sitters, and almost uninterrupted layers of large eggs. The Brahma Pootra seems to be a useful stock on which to build other varieties. Of these, the cross with the Dorking is most strongly recommended; and a cross with the Houdan produces table chickens of a fine size. At the last Chelmsford and Essex Poultry Show, the birds which took the first and second prizes for dead poultry, trussed as by poulterers, but not drawn, were, the one thirteen pounds twelve ounces, the other thirteen pounds ten ounces, the pair at five months old. They were the direct offspring of a Brahma Pootra cock bird and Dorking hens. For stock it would be a better plan to put a Dorking cock with Brahma Pootra hens, and the pullets of this union with Dorking cocks in no way related to the ancestors of the pullets. Very handy and weighty table birds may thus be produced. By answers to inquiries, and by reference to the books of a farm, including the last six years, I find that the average price paid by higglers for barndoor fowls of the average weights first mentioned, is two shillings for coop-fed, and one shilling and eight pence for yard-fed birds. The cost of feeding and rearing the prize birds at Chelmsford was probably very little, if at all, more than that of raising the others. With regard to feeding, our system of leaving chickens to shift for themselves until such time as they are ready or wanted for the coop, is all wrong. No attempt at after-fattening will increase frame if the feeding of infancy has been disregarded. Again, the indiscriminate emptying of apronfuls or sievefuls of grain in a heap on the ground, whilst it serves to gorge the powerful, leaves chickens and weaker birds to starve, picking up here and there a grain, whilst sparrows and small birds have a large share in the feast. I see that Mr. Mechi published last month the results of an experiment in the cost of feeding a single hen, shut up and without access to any food but that which was given by hand. The result shows that five pounds of barley at the average of one penny per pound (or forty shillings per quarter) will make one pound live weight of poultry food, worth nine pence per pound. I say it is quite practicable to feed poultry more cheaply, and consequently to sell them cheaper than shown by this method—that is supposing them to be at large; but I am sure Mr. Mechi will pardon me for saying that I think this statement of feeding in confinement is rather low, a circumstance which may arise from the fact that the bird pined at first. I have tried the same experiment with two pens of birds, consisting of a cock and two hens, confined for a long time to separate but very small wired pens. I tried it in March last year, and in the month just ended, and I found that my birds consumed three and a half pints to his two and a half pints in the week; but then I dare say the barley I used was of foreign growth, and of much lighter bulk. Birds having a free run would cost very considerably less. I must not occupy your valuable time with the details of what is necessary for the housing of birds, and for their places of laying and incubation. It will be enough to say that they should be, what they are seldom in farmyards, namely, cleanly, convenient, and attractive."

After the reading of the paper, further expressions of opinions were elicited by questions, in answering which, Mr. Manning said that he considered the nest should, if possible, be on the ground. He disapproved, as a general rule, of heating the fowl house by flues. As to the nutritive value of poultry meat, he thought it inferior to no other animal food. The objection that poultry damaged the stacks and crops was combated by the experience of Mr. Mechi and others, who found that the birds did a vast amount of good by destroying insects, which they preferred to the growing grain. This objection would also be obviated by a proper system of feeding. The tendency to epidemics amongst poultry kept on a large scale would, he thought, be prevented by the free use of lime and salt, great attention to cleanliness, and sufficient run for the birds, particularly a free access to the fields.

Poultry Disease.

"W. C.," from *Belleville*, writes as follows:—

Through the medium of your valuable journal I would like to get a little information. Two days ago ten of my little chickens, about a fortnight old, were suddenly attacked by a disease which killed them during the day. Later on some older chickens, and two eleven weeks old, and also an old hen, were seized with it and died. The symptoms seemed to be confined to a straggling, aimless walk at first, then a vacant look in the face, accompanied by a spasmodic gaping. Just before dying their struggles were very violent, all the limbs becoming quite rigid. They had plenty of water and nothing larger than buckwheat to eat, and, moreover, were running at large. Others in the hennery were not touched. A farmer living near calls it the "blind staggers," and says he has lost several in the same way. I tried bleeding in the case of the old hen, but without effect. After death I opened one of the larger chickens, and in the gizzard found what appeared to be the grub from a blue bottle fly, commonly known as a "gentle." I have lost some sixteen fowls altogether, and would like to know, if possible, what is the best remedy for the complaint.

Yours, &c.,

W. C.

NOTE BY ED. C. F.—The symptoms very much resemble those of poisoning. At all events the treatment we would recommend is the administration of a dose of jalap. One teaspoonful mixed with the food of twenty chickens would be the proper proportion. After which a tonic would be of service, which might be given by mixing with the drink of the fowl as much sulphate of iron as would make the water taste slightly inky.

Means of Knowing if Eggs are Fresh.

THE *Gazette des Campagnes* gives the following directions for testing the freshness of eggs:—

"We may observe, in the outset, that when an egg is fresh it is always full, that the shell is very porous, from which we draw the conclusion that in time a portion of its contents must evaporate, being replaced by a portion of air, which surrounds and presses the shell on every side. This air goes to the large end of the egg, because it finds there more surface than at the other end. Now, the liquid contained in the egg is a better conductor of heat than the air. If, then, the egg is fresh, the large end will be full of liquid, and we shall feel a sort of coolness on poising the large end in the hollow of the hand, because the liquid of the egg carries off a portion of the warmth of the hand. If, on the contrary, the egg is old, the air collected in the large end being a bad conductor, will not attract the warmth from the hand, and we shall not feel the coolness. It requires, it is true, a little practice and a certain delicacy of touch to avoid error in using this process, but that can be acquired much more promptly than may be imagined, and we have seen people capable of trying in this manner thousands of eggs without committing the slightest mistake, whilst the method of the *mirage* of the eggs by light gave deplorably fallacious results."

JOINT-STOCK NESTS.—My keeper, two days ago, found a nest containing seven pheasant's, three hen's, and four duck's eggs. The nest was some distance from the farmyard. Query, which made the nest? A week or two ago I found a pheasants' nest with thirty eggs in it.—*Field.*

Entomology.

Burying Beetles.

To the Editor of THE CANADA FARMER

SIR,—More than twenty-five years ago, I read, in *Chambers' Journal*, of Herculean feats of grave-digging beetles, but fail to remember anything at all of the description given of the beetles themselves. The enclosed specimen I (only) suspect must be one of them, through its performing a feat that perfectly bewildered me to account for. On Tuesday morning (June 16th), I was crossing a plantation of cabbages when I met quite a large-sized milk-snake, and because they have a bad character for sucking cows, I took its life by striking him at the back of the head with a pliant stick. He quickly died, bending himself to just about half his length, being fully a yard long. The place where he lay was between *two ridges*, and the ground was sandy. On passing that way next morning, I saw a large portion of the tail part was buried, and could see fresh earth being upheaved from beneath him. Next morning (Wednesday) I again visited the spot, and saw a large amount of work had been done. The head part (in length about eight inches) remained unburied, and was somewhat curved, and quite stiff. The ground below it was excavated to a considerable depth, and in form like the curve. And now, for the first time, I saw the performers; they both came out and walked on the top of the unburied part, and if I understood them aright tried (with their united weight) to press it down in the grave below; but this they failed to accomplish. On the score of humanity, I got a piece of clotted earth and pressed it down for them, and so left it covered. Excavations still continued till Friday morning, when they ceased. I now thought to leave them a while without disturbing them, but frequently took a look at the spot. No further change took place till Sunday, when the first thing I did after dinner was to stroll to this now interesting spot, when I saw one of the beetles having just emerged from below. He walked to and fro in a very undecided and awkward manner. At last he succeeded in climbing to the top of the ridge, taking a vacant stare, as though the world was new to him. His antennæ were about a quarter of an inch long, mounted with a tuft, something like a rosette. He now continued to comb with his brawny fore-legs (alternately) his antennæ, for about ten minutes, when the horny cases on his back began to move, and by slow degrees a pair of splendid gauze-like wings, which had been folded up in a very small compass by different hinges, made their appearance. I did not sufficiently suspect that he would really fly away and leave so much treasure behind, but, to my regret, he went off with a bound, with a melodic pitch to his wings, of about high C. I thought now I would like to know a little of the condition of the snake; and first I took up the rather large piece that I weighted the head part down with for them, and not doubting but that I should see it in nearly the same position as when I covered it; but no trace of it could I see, and concluded (with much regret) something had taken it away. I was about leaving, but thought I would just scratch a little more earth away, and found a place much softer, and carefully taking away the earth to about four inches deep, I found the other beetle in a torpid state, and swarming with very small but active and clean-looking insects. I took her out, and continued the search, when close by where the beetle was found, I discovered the mouth of the snake. I now found there was a round hole of about three inches in diameter and five inches still deeper. It was exactly in the following position:—Supposing a hole nine inches deep and three or four in diameter, and you took the dead snake (when quite limber), holding him by the head, then letting him down tail first in the hole, with his mouth perpendicular.

The beetle that flew away was much the largest. The one I send you soon died, being confined in a flower-pot.

Is this the veritable Grave-Digging Beetle?

Secondly. How did they put the snake in the position described above?

A SUBSCRIBER.

NOTE BY ED. C. F.—The insect referred to in the foregoing graphic description is a specimen of the veritable Sexton, or Burying-Beetle (*Necrophorus Marginatus*, Fabr). The snake was probably placed in the position referred to by being gradually undermined in the direction of the head, until the tail was brought directly beneath it; had the beetles been left alone a few days longer, they would probably have sunk the snake much deeper in the earth.

We have often observed similar performances by these beetles, which are very curious and interesting. At the very time we received this communication we were watching the interment of the dead body of a toad, which had been accidentally drowned. We left it lying on a sandy piece of ground; two days afterwards it had been removed to the distance of a foot from its first position, and had only its hind feet sticking up in the air, the head being downwards; the labours of the beetles underground caused it to move about, and look as if it were diving into the sand, just as one sometimes sees the tail and feet of a duck sticking up above the water of a shallow pool, while their owner is seeking food at the bottom. Two days later the toad had quite disappeared. On digging with a trowel at the place where the ground had been last disturbed, the soil around being slightly crusted, no toad was to be found! We continued to dig, however, around the spot, and at last found the toad six inches below the surface, and about the same distance from the place where we had last seen his legs; the surface of the ground immediately above him being perfectly undisturbed. In this case also the gravehad been dug in an oblique direction, and not directly downwards. Underneath the body we found the two Sextons—specimens of another species of the same genus of Beetles (*N. Orbicollis*, Say), which can be recognised from the annexed figure. There are at least ten species of

these grave-digging beetles in Canada, differing from each other in ornamentation and structure, but all possessing the same habits and instincts. Their office, though loathsome, is pre-eminently useful, it being their duty to remove from the surface of the earth the dead bodies of animals which would otherwise soon become offensive and injurious to health. After they have buried a carcass the female deposits her eggs in it, which speedily hatch, and the larvæ at once set to work to devour the dead and putrid matter.

Dr. Hall's Curculio Catcher.

To make a "Curculio Catcher," we first obtain a light wheel of about three feet diameter, the axle-tree of which should be about ten inches long. We next construct a pair of handles, similar to those of a common wheel-barrow, but much more depressed at the point designed to receive the bearings of the axle-tree, and extending forward of the wheel just far enough to admit a cross-beam to connect the two handles at this point. Directly in the rear of the wheel a second cross-beam is framed into the handles; and two feet further back a third. The two last named beams have framed to their under side a fourth piece, say two or three inches in diameter, which is placed centrally between and parallel with the handles.

To the handles and to these last named pieces, our stretchers to support the canvas are to be fastened. The front part of the beam, connecting the handles before the wheel, is designed for a ram, and should be covered with leather and stuffed with furniture moss, a dozen or more thicknesses of woollen cloth, or other soft substance; care being taken to use no more than is sufficient to protect the tree from bruising. The frame of our Catcher being finished, we next ascertain the elevation the handles should have in driving, and support them in that position. Having ready twelve stretchers or arms, (six for each side,) which are to receive and support the canvas, we place the long front arms in position. These extend from near the centre of the wheel on each side, and beyond the wheel in front about six feet; and are wide enough apart to receive the largest tree between them, on which it is intended to operate. The remaining stretchers are supported on the handles, and attached to the cross and parallel pieces in the rear of the wheel. These are so placed as to divide the space at their outer ends equally, between the first-mentioned stretchers and the ends of the handles.

We now have ready a strip of board, one-halfinch in thickness and two and a half wide. One end of this is firmly secured to the forward end of one of the front stretchers; it is then secured to the end of the next, and in like manner to all the others on one side of the machine, and fastened to the handle. Both sides are made alike. The office of these two strips is to hold the outside ends of the stretchers in their proper position, and prevent the two front stretchers from closing. These outside strips also receive the outside of the canvas, which is fastened to them, as well as to the several arm supports. Three of these arms, on each side, may be cut and hinged so as to fold up, thus making the machine more convenient for housing. In this case two additional sets of braces would be required, and each of the outside rims would be made in three parts, instead of one, as first described.

From the description thus far given, it will be seen that the wheel occupies a central position, and is nearly in the centre of the machine. To avoid an opening at this point, a frame is fastened to the handles on either side of it, and brought together over the top of the wheel. This, as well as the stretchers, is to be covered with canvas. The arms or stretchers are so curved, that the jarring motion in moving from one tree to another brings everything falling on the canvas to the most depressed points, where openings are made into tunnels, to the ends of which the mouths of pockets or sacks are tied. These can be removed from time to time, and their contents destroyed by immersion in hot water. The whole machine, when completed, is about 10 feet in breadth by 11 or 11½ long; or at most 11½ wide by 13 or 13½ feet long. These are for large orchard trees. Smaller trees could be protected with a smaller machine. The frame-work, when covered, should be so nicely balanced, as to require scarcely any lifting to hold it at the proper elevation.—*Dr. Hall's Essay on the Plum Curculio.*

Insect Specimens.

WE have received from Mr. J. M. Bristol, of Virgil, County of Lincoln, Ont., a very interesting specimen of a Snout Beetle or Curculio; it is about half an inch long, of a shiny black colour, covered with yellowish down, or short hairs. The species is quite new to us, and we have not been able to find it in any Canadian collection that we have access to; of course we have not the least idea upon what the insect feeds, or what is its natural history. Being so rare it cannot be considered injurious; we shall, however, endeavour to find out all about it.

We have also received two specimens of the large eyed spring-back beetle (*Alaus oculatus*, Linn.). Though it belongs to the dreaded family of wire-worms it may be considered as non-injurious, its favourite food being decayed wood. We have had another fine specimen of this insect sent us by Wm. Magrath, Esq., Erindale, Credit.

☞ A raid upon cockchafers has lately been made around Paris, especially in the Bois de Vincennes. More than 15,000 litres have been killed. The trees are shaken in the morning early when the insect is in a state of torper and easily detached. Collected immediately, they are thrown into tar water from the gasworks. This liquid kills them almost instantaneously. They are afterwards used as a manure. This "raid" is simply a result of the wholesale destruction of insectivorous birds that has been going on for several years in France, and should be a warning to the promoters of "sparrow clubs," and destroyers of crows, &c.

THE GRASSHOPPER PEST.—The Chicago *Post*, June 19th, says:—The grasshopper plague is devastating Western Iowa in a fearful manner. A friend who has just come in from Sioux City, informs us that of about one hundred and fifty miles wide, extending from south western Dakota—chiefly between the Des Moines and Missouri rivers—to the southwestern boundary of Iowa, there will be scarcely a wheat field left exempt from total destruction by these vermin. They fill the air and cover the ground, making a constant sound like that of a heavy shower. They sometimes gather over night in such myriads upon the track of the railroad as *to stop the train* by lubricating the track when crushed by the wheels. They devour wheat first, and afterwards take to oats and weeds, leaving grass and other crops comparatively unharmed.

SCARLET SPIDERS.—"One of our Readers" sent us the following note with the specimens therein mentioned. "The enclosed beautiful little scarlet insects we find crawling about on the ground, apparently very happy, and glittering like coral dust in the sunshine. We are curious to know the name and economy of these brilliant little creatures."

NOTE BY ED. C. F.—The tiny coral-red specimens are diminutive spiders, whose avocation, no doubt, is to destroy even tinier flies and other insects; we found them ourselves very early in the spring, and repeatedly since, in the sandy soil of our garden. They are exceedingly pretty little creatures, and probably useful as well; we do not know their name, but they are quite different from what is known as "the Red Spider," a tiny ground mite that is often troublesome in hot-houses, injuring vines and plants by spinning fine webs over their leaves.

DOES FROST KILL LARVÆ?—In a paper addressed to the Academy of Sciences by M. Reiset it is distinctly stated that the general belief held by agriculturists, viz., that severe frost kills noxious insects and larvæ that grub in the earth, is a fallacy. This proposition led to a discussion amongst the members of the learned body. M. Emile Banchard, after doing justice to M. Reiset's important researches, said that it would be wrong to suppose that naturalists had hitherto lived in ignorance of the habits of larvæ feeding on roots, and that it was a well-known fact that, while the temperature continued mild, they remained near the surface, and on the contrary descended to greater depths as the cold became more intense, so as always to escape the effects of frost. The idea, therefore, that a severe winter would rid agriculture of its greatest enemies, was utterly without foundation. M. Chevreul said that M. Reiset had no intention of passing himself off as the discoverer of the fact alluded to, but had done science a great service by instituting precise experiments for the purpose of ascertaining at what depths, according to the temperature, larvæ would be found in the soil, and this had not been done before. These experiments had been carried on for upwards of a year, and M. Reiset had ascertained that while the thermometer stood at 15 deg. cent. below freezing point in the air, the temperature of the soil at a depth of 50 centimetres did not fall below zero; this happened, however, on an occasion when the ground was entirely covered with snow. After these important experiments M. Reiset had told agriculturists that they were utterly mistaken if they trusted to frost for the preservation of their crops from insects, and that they must exert themselves if they wished to rid themselves of the impending scourge. In this M. Reiset had done his duty, without raising any pretensions to a discovery. Last autumn M. Reiset, knowing that the white worm was still quite near the surface, caused a field to be slightly ploughed and harrowed; two women followed the harrow with baskets, and collected 344 kilog. of white worms, at a cost of 12fr. per hectare (2½ acres.) This field produced an excellent crop, while that next to it, which had been let alone, produced nothing.—*Galignani.*

The Plum Curculio.

To the Editor of THE CANADA FARMER:

SIR,—I send you half a dozen of what, by the description given by "Fruit Grower" in the CANADA FARMER of the 1st June, I take to be that abominable pest, the Curculio. I have carefully followed the plan adopted by "Fruit Grower" and have succeeded in destroying some three dozen. I may add that I consider his method the only one worth anything. The "binding of rags saturated in oil round the stem of the tree, and the subsequent use of chloride of lime and sulphuric acid, I have proved to be utterly useless. I am persuaded, if this be the "Turk," that "Fruit Grower's" remedy is thoroughly efficacious, and would venture to recommend it to all who at the "bloom" expect a good return, and at the gathering are sadly disappointed.

I have found white *hellebore*, used as recommended in a late number, an effectual destruction to the gooseberry caterpillar. A small teacupful well mixed with a little water will make a paliful; this I applied with a watering pot, chiefly in the centre of the bush, in the early spring, just when the leaves appeared, and I have not one caterpillar, whilst the garden the other side of the fence is swarming with them.

J. F. BROWNE.

Toronto, June 25th, 1868.

NOTE BY ED. C. F.—The specimens sent us were genuine "Little Turks," or Plum Curculios. We append illustrations of the insect magnified, (figs. 1

and 2); a punctured plum, (fig. 3); and the Curculio at work, (fig. 4). These figures, with the description

we gave in our last number, will, we trust, enable any one to recognize the enemy without difficulty. Bandages round the stem of the tree could not be of any use in keeping off the Curculio, because it flies with great activity, and does not require to climb up the trunk: but when properly applied they are effective remedies against the parents of the Canker Worms, (*Anisopteryx*,) which come out of the ground, and in the female sex are destitute of wings. We are glad to find that Mr. Browne has tried the jarring process, and has found it useful; we believe it to be the only efficacious remedy.

☞ From all parts of the South and Southwest come direful accounts of the appearance of the seventeen year locusts, as they are popularly called, though they are in reality a very different insect from the locust, and should be called the Cicada.

Correspondence.

Farmers' Clubs.

A CORRESPONDENT from Seneca, in Haldimand County, applies to us in reference to the organization of "Farmers' Clubs." "As we are about," he says, "to organize a Farmers' Club for this locality, and as I am inclined to think there are some prescribed rules for the government of such clubs, I therefore write to ask you to assist us by sending me a copy of the rules, if it is convenient for you to do so."

Not having any such document at hand, and knowing that the Herkimer Farmers' Club, in which Mr. Willard, if not an officer, takes a lively interest, was one of the most successful institutions of the kind, we wrote to that gentleman asking him to forward us the rules of the Society, if they were printed. The discussions of this Club are frequently reported in the *Utica Weekly Herald*, and are full of interest, and often elict very valuable information. Mr. Willard very kindly and promptly replied, expressing his regret that, as the Constitution and By-laws of the Club were not printed, and he did not happen to have them at hand, he could not comply with our request, adding, however, that "the By-laws are of the simplest character, they merely rehearse the duties of President, Vice-President, Secretary and Treasurer. A fee of one dollar is required for membership. Discussions are held twice a month. The discussions are informal, members keeping their seats and talking—giving their experience—asking and answering questions, &c. We find this plan results in obtaining most information, as many farmers can not be induced to rise and make a set speech. It is preferred that the member appointed to open the discussion write out his remarks. Some do, and others do not."

We do not know that we can add any particular directions for the guidance of our correspondent. The constitution and rules generally state the name of the club, its objects, and its management. The objects are, to promote social intercourse among the farmers of a neighborhood, and give them an opportunity of comparing their experience, and thus adding to the stock of agricultural knowledge. This is done by meetings held at regular periods, especially during the leisure months of the year. The frequency of the meetings must, of course, depend upon local circumstances. The duties of the officers are few and simple—the office is usually held from year to year. An annual general meeting is held to elect officers, receive the report of the year's proceedings, and the Treasurer's financial statement, and to transact such other business as may be required. The regular and ordinary meeting should be made as pleasant and social as possible, but not, to our thinking, by the aid of tobacco and whisky, as we saw gravely recommended not long since in one of our exchanges. If the Club is made the means of taking the farmer from his own fireside to the ale house, it will be more mischievous than beneficial. We commend the example of the Brighton and Cramahe Farmers' Club, several of whose meetings are attended by ladies, who evince considerable interest in the proceedings, and must have a very beneficial influence upon the character of them. In the number of the CANADA FARMER for Feb. 15th, 1867, is a report from the Secretary, Mr. J. C. Squier, of the proceedings of the above Society. We should be glad to receive similar reports, and if any established Society would furnish us with a copy of their rules, they would be of service in answering enquiries like those of our correspondent.

GOAT WANTED.—A subscriber from Limehouse enquires:—"Can you or any of the readers of your journal inform me, through your columns, where a goat or two could be purchased, as near the township of Esquesing as possible, and at what price?"

Bath and West of England Society's Show, &c.

To the Editor of THE CANADA FARMER:

SIR,—During the past three weeks I have had many opportunities of attending exhibitions, fairs and markets in different parts of England; a few remarks in relation to some of which may not be devoid of some interest to your readers.

The Bath and West of England Society is among the oldest established in Britain, dating its commencement from 1777. It embraces objects similar to those of the Provincial Association of Upper Canada, making agriculture a primary, without its being an exclusive object, and affording encouragement to arts, manufactures and commerce. The show was held at Falmouth, being at the extreme Western point of the kingdom, a circumstance sufficient to account for the smaller number of entries in each of the departments, as compared with previous years and more favored localities. Notwithstanding this drawback, the *quality* of the stock, implements, fine arts and manufactures is said never to have been exceeded, and the weather being most favorable, the attendance was very satisfactory.

In this part of the country the Devons would naturally occupy the most prominent position, and the display was really very fine. The Devon is certainly a small animal compared with either the Short Horn or the Hereford, but for beauty and symmetry of form, as also for quality, it can scarcely be excelled. There is a decided difference both in size and expression between the true North Devon, occupying a high and broken range of country, and those of the richer plains of the South and East, the latter being larger and mostly somewhat coarser. I saw an extensive herd of Devons, comprising the largest animals that ever came under my observation, belonging to Mr. Stuckey, near Taunton, in Somersetshire. They have excellent points, denote careful breeding, and possess excellent constitutions. The Short Horns were much less numerous, but in point of quality decidedly good, and the same remarks will apply to the very fine specimens present of Herefords. I felt a little disappointment at not seeing any specimens of the ordinary cattle of this interesting section of England. In sheep, however, the local breeds, mostly horned, were well represented; the Dorsets and other varieties are certainly very pretty animals, some of them larger than I was prepared to find them. The Leicesters and Cotswolds were not very remarkable, but the Downs were excellent. The horses both for the saddle and draught appeared to be above par; the farm animals being evidently well suited to the requirements of the soil, and the local wants of the district. The Exmoor ponies are small, hardy and free-working creatures, very useful for many purposes, and they are to be found more or less through the adjacent counties. The pigs were good, but not better, I think, than what we are accustomed to see in Canada on such occasions. Some specimens of the Lincoln breed, sent from that county, were certainly extraordinary for early ripeness and beauty of form. The Poultry department was exceedingly meagre. The large floral tent was well filled with exotics and flowering plants of much excellence. With the exception of ripe cherries and strawberries there was no fruit on exhibition, and no attempt made at a display of early vegetables, for which this district stands pre-eminent. In various parts of the Cornish coast large belts of land are put under cultivation for the raising of various kinds of garden produce, and many thousands of tons are sent by rail to London and the northern towns, which are supplied with cabbage, cauliflower, peas, rhubarb, asparagus, &c., several weeks earlier than they could be from their own localities. Sea-weed and sand, the latter consisting largely of comminuted shells, with carbonate and phosphate of lime, are extensively employed for manuring purposes.

The display of implements, &c., considering the remoteness of the situation, was very good, several of the principal manufacturers being represented. There was nothing particularly striking or novel in this department, but to a stranger the improvements made in recent years are strikingly apparent. The two halls devoted to the fine arts and manufactures were well filled, chiefly with original contributions, many of them of great merit, from various parts of this western section. I may just observe that a dog show was held outside the Society's grounds, comprising about 400 specimens of the different breeds, varying in size, forms and habits, in a most extraordinary degree. The race among half a dozen lifeboats in the channel could be distinctly seen from the grounds, which for natural beauty and adaptability to the purpose, far exceeds anything I have yet seen in any part of the world.

The Horse Show at the Agricultural Hall, Islington, was an eminent success. There were hundreds of animals, many of them of first-rate excellence, of all breeds, competing in various ways in well-defined classes with each other, with the exception, perhaps, of draught horses. The Hunter classes were decidedly good, better, it was said, than had ever appeared in this place before. The Arabs, too, excelled; such splendid specimens of this noble breed I never before witnessed. Hacks, roadsters, ponies of almost every description, appeared in great numbers, and to all lovers of the horse the sight must have been magnificent. The immense building was erected a few years ago for the accommodation of the Smithfield Cattle Show, but it is used for similar purposes at different periods of the year. The show of implements and machines, manures, &c., was of itself well worth a visit. The order and systematic attention to details through all the proceedings must have commanded the highest admiration.

I had an opportunity of attending the annual exhibition of the Hunts and Bucks Agricultural Society, held in the ancient city of Winchester. The show was not so large as I anticipated, but there were many good specimens in the different departments, few, however, worth particularizing. The Hampshire Downs appeared to great advantage, as the Sussex and Shropshires, Leicesters and Cotswolds were by no means up to their usual mark. There can be no doubt that the Down, in some of its varieties, is naturally best adapted to the high chalk pastures of this part of England, but on the heavier and richer soils the long-wooled breeds are the more profitable. The cattle and horses called for no particular remark, but the display of poultry was really magnificent, exceeding both in quantity and quality anything of the kind I have ever seen.

It is worth mentioning that I have now been travelling six weeks through several of the midland, southern, and western counties of England, and up to the present date have not experienced a single shower of any importance. A few thunder showers have occurred in some places, but generally the weather has been almost unprecedentedly hot and dry, with no immediate prospect of a change. The hay crop is mostly light, but cured in excellent order. Wheat is in bloom, and gets through the drought the best of any crop. It is in some places thin on the ground, and anything but luxuriant. It may, however, come up to an average. Spring grain of all descriptions must be light, and turnips, mangels, &c., unless the weather changes soon, must prove a failure. Hops are universally good. Grass being deficient, all kinds of live stock meet with a heavy sale, and graziers are experiencing great losses. All are heartily wishing for rain.

GEO. BUCKLAND.

Basingstoke, June 19th, 1868.

"Dry Earth System &c."

To the Editor of THE CANADA FARMER:

SIR,—A great deal has been said and written lately of Revd. H. Moule's "dry earth system." Can you or any of your readers inform me how the plan can be worked in this climate, as it is next to impossible to obtain fresh supplies of dry earth from October until June? A most valuable manure is in almost every case thrown away for want of some economical system of management.

2nd. Which is the simplest plan of burning clay for manure?

3rd. Not having been trained as a practical farmer, and having frequently had fields of grain ruined through carelessness in the man sowing—can you tell me of any inexpensive implement which can be used for sowing grain?

NOVA SCOTIA.

June 6th, 1868.

NOTE BY ED. C. F.—Those who have adopted the "dry earth system" in this country do not experience any difficulty in carrying it out. They collect their supply of dry earth in August and September, and store it in any convenient place. A barn will do; a cellar might be preferable. It is of the greatest importance that the earth should be perfectly dry, its efficacy depending principally on this condition; a sandy loam is the best kind for the purpose.

The plan is found in practice to be perfectly inexpensive and cleanly, counteracting all offensive odour, and furnishing a most valuable manure, which proves beneficial to almost any kind of crop.

In reference to the second question, the following extract from a lecture by Mr. Mechi may supply a hint:—

"The physical condition of the soil is entirely changed by burning. The bird-lime, or putty-like soil, previously almost impervious to air or water, becomes loose and friable, permitting the free circulation of plant roots, and making the land work so much easier, and leave the plough bread readily There is no safer investment on stiff clays than burning the sticking, dense, unmanured subsoil—where coal is dear it must be dried by the atmosphere before burning, and is of course summer work. One old stump of a Pollard will start and burn 140 cubic yards. The most notable and successful instance of earth-burning on a large scale is that of Mr. Randall, near Evesham. He has continued burning, winter and summer, for twenty years. Coal-dust is there very cheap, and one ton will burn twenty tons of earth."

With regard to the last query, our correspondent would doubtless find advantage in the use of a seed drill. Almost any of the agricultural implement makers furnish them. Messrs. Maxwell and Whitelaw, of Paris, manufacture a thoroughly good implement for the purpose.

The Canada Farmer.

TORONTO, CANADA, JULY 15, 1868.

The Weather and Crops.

IT is now quite safe to speak pretty confidently in regard to the season of 1868, as most of the crops are so far advanced as to be secure from injury, and it would be hardly possible to paint too glowing a picture of the promising state of things that prevails, with scarce any exception, from one end of the country to the other. The weather, with the exception of the recent heat and drought, has been all that could be desired to bring on crops of all kinds. Of late, gardens and field roots have suffered from the dry, hot weather, but the turnips are unharmed, and will start vigorously so soon as we have showers. There is an abundant yield of hay, and it is well cured. Haymaking is about over, and wheat harvest has fairly begun. We hear very favourable accounts of the wheat from various quarters. There is but little complaint of midge, and a very intelligent Vaughan farmer with whom we have conversed, is quite satisfied in his own mind that this insect pest is "played out," as the boys say. He is convinced of this, not only because of the limited depredations noticed the present year, but also because he believes the long-hoped-for parasite has come. At the usual time for midge, instead of it, a strange fly of the ichneumon class hovered about his evening lamp, and this he has little doubt is the midge destroyer, "long looked for, come at last!" Myriads of voices will respond, "so mote it be!" Spring grains look well. The dry weather has checked the tendency to an over-growth of straw, which was apparent earlier in the season, and if not too long continued will be favourable to the filling of the ear. Potatoes will be a light crop, unless the latter part of the summer should be wetter than the early part has been. Fruit still promises well, though there is much complaint of insect ravages in the orchard and garden.

British Versus American Farming.

OUR able Scottish contemporary, *The Farmer*, in a recent article on "the Grain-producing States of America," institutes, apparently without intending to do so, a series of comparisons between the styles of farming in vogue on the Eastern and Western sides of the Atlantic, which by no means redounds to the credit of trans-Atlantic agriculture, and the mention of which may perhaps act as a stimulus in quarters where that sort of influence is needed. After adverting to the enormous aggregate yield of wheat in the far-west, *The Farmer* observes:

"We do not at present wish to enter upon the discussion of the character of these soils and the manner in which crops are grown and harvested; but this we may remark, that the soil is of course virgin and rich, that 99 per cent. of the farming community are in total ignorance of scientific agriculture, that the air is innocent of the smell of guano, and broken British weather seldom worries the life of the prairie farmer as he reaps his autumn yield."

Here are found points in which it is either stated or implied that the new-world farmer appears to a disadvantage as compared with the old-world farmer. 1. Inferior tillage of a soil virgin and rich. 2. Ignorance of scientific agriculture. 3. Neglect of manuring. 4. Poor improvement of splendid harvest weather. Our contemporary feels assured that though the British farmer has to some extent a rival in the western grain-grower, he has not much to fear from such rivalry, and when the farmers of Britain cannot compete, and that remuneratively, with proprietors of small holdings in the far-west, "the sooner they turn to some other occupation, the better for themselves and the agricultural world." The grounds of this assurance are the scientific and systematic farming practised in Britain, comparative command of labour, use of improved machinery, artificial manures, and a ready market. *The Farmer*, waxing warm with his theme, indulges in a glowing and eloquent peroration, which more forcibly than any other portion of the editorial in question rebukes the short-comings of trans-Atlantic agriculture, while it betrays a pardonable if not justifiable pride in view of the comparative certainty to which the science of agriculture has been brought in the old world.

"The East-Lothian farmer, who can enjoy the pleasure and deep satisfaction of viewing the level field of full-eared wheat, swaying in the undulating waves beneath a bright sun, giving to the grain a last golden tinge before the reaper enters on its clattering work, can almost to a nicety tell you that he will thrash from that field his fifty or his sixty bushels an acre. And so long as he can do that, with even a tolerably high rent, he is able to set at defiance all the competition of the Baltic or Black Seas, as well as the not less formidable rival of a young western world, where many will perhaps be astonished to learn that the average yield per acre, over the whole wheat-producing breadth, is only about fifteen bushels per acre."

The homily to careless agricultural sinners, of which we have given in the foregoing paragraphs a few "heads and points," carries its own lesson without need of application from us, yet we cannot forbear a remark or two. It is undeniable that farmers in the United States and Canada are far outdone by their British brethren. With a soil nearly in its native freshness to till, we grow but a small average to the acre, and with magnificent harvest weather, we do not excel in the quality of the grain we produce. We are beaten mainly because old-country farmers give the land better tillage, and more manure than we do. Drainage and repeated deep ploughing, weeding, loosening of the soil, to-

gether with unstinted use of natural and artificial fertilizers, are the characteristic points of excellence in British agriculture, and of defect in ours. For want of acquaintance with the scientific principles which underlie their calling, too many among us have a prejudice against high farming, and fear to venture upon outlays which are in truth essential to great success. Here and there are to be found those who from want of capital are unable to farm better, but we have multitudes of farmers who have made money by pursuing a system of exhaustive agriculture, and who would rather let out their gains at eight per cent., or tie them up in an old stocking, than they would invest them in land improvement, well-bred cattle, or labour-saving machinery. The probabilities are that we shall go on thus until small holdings no longer yield even a meagre subsistence to their proprietors, and then capital will come in, convert a multitude of small holdings into a few large estates, and after some outlay in land improvement, astonish the natives by doing what the "East Lothian farmer" is doing to-day, namely, surveying in the golden radiance of the July sun "level fields of full-eared wheat," good for fifty or sixty bushels an acre when the reaping and threshing machines come to do their work. With an equally fertile natural soil, no rents, hardly any taxes, the best of agricultural implements at command, a climate unsurpassed for grain-growing, and only the one drawback of scarce and dear labour, we ought not to be so far behind the British farmer in actual achievement, as truth compels us to confess that we are.

The Wool Market.

THERE has been a good supply of wool the present season, but as was to be expected, prices have been moderate, and there has been no speculation. The business has been chiefly done by local buyers on their own account, and in changing hands purchasers have only looked for a fair commission for their trouble and risk. The market opened at about 25 cents, and in some instances, we believe, even a cent or two less. It has not advanced beyond 28 cents so far as we are aware, and perhaps 26 cents has been about the average. Low as these prices are compared with what has been realized sometimes of late years, they are better than some of the United States flock-masters have obtained, even with the aid of high protective tariffs, as will be seen by a paragraph elsewhere in this impression. A few American buyers have been in the Canadian market in order to purchase the long combing wool, which they require for their worsted manufactures. A certain quantity of long wool they must have, at any price, tariff or no tariff. The *Trade Review* says there is marked improvement in the quantity of Canadian wool. It is better washed, better put up for market, and there is a less proportion each season of dirty and "burry" wool. This is gratifying.

Notices of Books.

A GUIDE TO THE STUDY OF INSECTS, AND A TREATISE ON THOSE INJURIOUS AND BENEFICIAL TO CROPS.—For the use of Colleges, Farm-schools, and Agriculturists. By A. S. Packard, Jr., M.D., Salem: Press of the Essex Institute. Part I., June, 1868. Price 50 cents.

THE BUTTERFLIES OF NORTH AMERICA: with colored drawings and descriptions, by Wm. H. Edwards. Philadelphia: The American Entomological Society. Part I., April 1868. Price $2.

TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY. Philadelphia: Printed by the Society, Volume I., number 4, January 1868. $3 per annum.

Nothing can better attest the progress that is now being made on this Continent in Entomological science than the simultaneous publication of three such serials as those whose titles are given above. Twelve years ago, when we began the collection and consequent study of Insects, we were for some time unable to procure any works on American Insects except Gosse's Canadian Naturalist, and a few scattered papers in the Canadian Journal. By and by we succeeded in *borrowing* copies of Harris' Injurious Insects, Say's American Entomology, and Emmon's Insects of New York. These were very difficult to obtain, the two former being out of print, and the latter much more costly than it was worth; and these, with the exception of numerous papers scattered about in divers scientific periodicals, very expensive and not easily procured, were all the Entomological works extant in America. Soon, however, the Smithsonian Institution commenced its valuable series of publications on this branch of Natural History, and gave an immense impetus to the study of Entomology; and now we have magnificent reissues of Say's and Harris' works, and the press begins to teem with practical reports from State Entomologists, proceedings of Societies, lively popular papers in Magazines, and no end of articles and paragraphs in Agricultural Journals. A striking type of all this improvement is presented in the works before us, to which we now desire to draw the attention of our readers. We have placed them in the order of popularity in their intention, rather than in the order of merit, as they do not admit of comparison in the latter quality—all three being thoroughly excellent in their several ways.

Dr. Packard's *Guide* is a work which we trust will find its way to all who take any interest, scientific or practical, or both, in the world of insects. It is designed to assist the student in learning the structure, transformation and development of insects, to direct him in their collection and preservation, and to help him in the identification of his captures; it is also intended to afford a useful account of those classes of insects that are especially injurious to vegetation, and at the same time draw attention to those that are beneficial. The name of the author, whom we have long known and esteemed as a thorough Entomologist, is a sufficient guarantee that the work will be faithfully carried out. The part before us, which consists of sixty well-printed pages, and more than that number of accurate illustrations, presents us with a concise and clear description of the whole anatomy of insects, and begins to trace their transformations from the egg state. This will be completed in the next part, which will also contain notices of the Geographical Distribution, Geological History, and Diseases of Insects, with a list of the chief works on Entomology, and directions for collecting and preserving specimens. Subsequent parts will treat of special groups of insects, and afford much useful information in a popular manner. The first parts are necessarily of a less generally interesting character, though very valuable for all who desire really to study insects, and learn their actual nature. We can most cordially recommend the work, and wish the enterprise every success.

The next work on our list—Mr. Edwards' Butterflies—is of a most beautiful and sumptuous character, being fitted to adorn the drawing-room table as well as delight and assist the student in his closet. The part before us contains life-like and life-size figures of five different species of Butterflies, all of the genus *Argynnis*—popularly known as Fritillaries or Silver-spots. The drawings are most exquisitely done, and beautifully colored, and must delight even those most insensible to the loveliness of nature, and her gay animated flowers. While it is a work that appeals to the wealthy patrons of literature for its support, it is yet one which the Lepidopterist can hardly afford to be without; its publication at intervals of three months prevents its cost proving too serious an outlay.

To the remaining publication it is hardly necessary for us to draw attention; the Transactions of the American Entomological Society have been so long known and highly esteemed under their former title of the Proceedings of the Entomological Society of Philadelphia, that they need no words of commendation from us. They are designed, of course, only for the student of Entomology, and would prove almost unmeaning jargon to those who had not already mastered the rudiments of the science; to Entomologists, however, who desire to keep up with the progress of their favourite pursuit, they are an absolute necessity. The present number, which completes the first volume of the new series, contains descriptions and figures of several new species of Canadian Lepidoptera, amongst these of a large number of insects from all parts of North America.

Of Entomology, as well as of other sciences, it may now be truly said that its course is "onward, ever onward." What is its goal to-day is its starting-point to-morrow, and soon is left far behind!

DISCONTINUANCE OF THE "FRUIT CULTURIST."—The useful and ably conducted Horticultural Journal which has been favourably known by the above name, will, we are sorry to learn, be discontinued after the present month. In its place subscribers will receive the *Journal of the Farm*. We shall miss the welcome visits of the *Culturist*, which has been one of our much-valued American exchanges.

Agricultural Intelligence.

Traction Engine.

THE new Traction Engine recently consigned to Mr. W. Sutherland Taylor, by the makers, Messrs. R. Garrett & Sons, Leiston Works, Suffolk, England, was exhibited in practical operation on the streets of Toronto on Tuesday afternoon, July 7th. The success of the experiment demonstrates, as far as any ordinary judgment can anticipate results, the adaptability of the machine for practical purposes in this country, and the many different forms of labour to which it could be put, were suggested forcibly by seeing it work. The Engine was attached to two trucks loaded with seven tons of cast iron pillars from the foundry of Messrs. Hamilton & Son, Palace Street. In consequence of the trucks ordinarily in use with such machines not being ready, those belonging to Messrs. Sheddon & Co., Grand Trunk teamsters, were used, and after being filled with iron were loaded with an additional cargo of men and boys, the iron being completely hid from sight by the number of the aspirants after a free ride behind this novel mode of locomotion. A third waggon was also put into requisition, and filled with between forty and fifty people, and with this load—in all between twelve and fourteen tons—the engine started along Palace and Front Streets at a pace of about four miles an hour. This was accomplished to the utmost satisfaction of all the spectators, among whom were gentlemen from the neighbouring counties and at a distance, who had come to town specially to see the test made. The streets through which the novelty passed, were also lined with large numbers of people who evinced a lively interest in the proceedings. The powers of the engine were fully tested in ascending and descending even steep grades, and also in turning with its line of trucks in comparatively confined space. The engineer also showed, by stopping the engine in the middle of an ascent, his complete control over its movements.

The trial was in every way satisfactory, and afforded ample proof, not only of the advantage of such machines, but their adaptability to the necessities of this country. Had the load been larger, we are informed, its pace over the level road would have been even steadier than it was. On such a road as Front Street, the engine could conveniently carry twenty tons; but where hills intervene this would have to be somewhat reduced. In regard to the danger of frightening horses, anticipated by many as an objection to the use of these machines, we may say that, although a great many horses were met on the streets, only one or two standing loose at shop doors were frightened—and even these regained confidence when held until the engine passed. With the same speed as on Tuesday, the engine could pass with equal safety through our most crowded thoroughfares. The smoke appeared a smaller grievance than could possibly have been anticipated, scarcely being seen outside the smoke-stack at all. We hail the successful inauguration of this important experiment with much satisfaction, and trust it will be followed by other similar engines, to the immense advantage of the traffic of the country.

☞ Large sums of money have been expended in Texas this spring for beef cattle for the Northern markets, and extensive droves are now *en route* through Arkansas.

☞ A beet-root sugar manufacturing company has just bought four hundred and eighty-five acres of farming land in Illinois, for the purpose of raising beets.

☞ The Goderich salt company have reduced the price of salt to $1.30 per barrel. This now places it on the same basis as the Onondago salt, while it is of superior quality.

FALL SHOWS.—The exhibition of the Agricultural Societies of the South Riding of Oxford and South Norwich, will be held at Otterville on Thursday and Friday, 7th and 8th Oct., next. The Durham Fall Show will be held at Tillsonburg on the 15th October next.

WESTERN WOOL.—The Illinois Wool market has been passing through a panic, and the sheep men have been insulted almost beyond pacification by the offer of 20 to 25 cents cash for wool. One farmer took a few dozen fleeces to market, and was offered 20 cents cash or 40 cents trade at the factory. Having a pretty fair stock of strong language at command, he "delivered a short but pointed oration at the head of the factory man, and took his wool home." Enormous tariffs do not always secure high market prices for a commodity.

☞ THE fires recently kindled in the process of clearing the woods in the county of Kamouraska, have caused great ravages. Many houses have been consumed, and the fields newly sown have become the prey of the devouring element—all resulting from want of foresight, or, in other words, gross carelessness.

SALMON.—The Quebec *Gazette* says salmon are entering the bays and streams of the St. Lawrence and Bay of Chaleur districts this season in great abundance. The fish are also unusually large sized, numbers being caught of from 30 to 44 pounds weight each. These results are ascribed to the careful protection of the breeding grounds, and the restriction of netting, under the fishery laws.

TREE PLANTING.—If a farmer in Wisconsin plants a row of trees along the road, he is exempt from working on the road. Whoever hurts one of these little trees is fined $5; and the State Horticultural Society offers a premium of $100 for the best ten acres of forest trees, and $50 for the second best. Might not we in Canada take a hint from the above commendable example?

PREVENTION BETTER THAN CURE.—The Illinois Legislature has passed a law providing that any person bringing into the State seed of the Canada thistle, in the packing of goods, grain or grass seeds, or otherwise, and permitting the same to be disseminated and vegetate, shall be liable to a fine of $400; and any person allowing this thistle to mature and disseminate its seed upon his lands shall be subject to a fine of $75.

EXPORTS OF BEETROOT SUGAR FROM FRANCE.—The total exports of raw betroot sugar from France in 1867 were 27,872 tons, as compared with 26,578 tons, in 1866, and 28,279 tons in 1865. In these totals the exports to Great Britain figured for 24,223 tons, as compared with 22,076 tons in 1866, and 27,103 tons in 1865. The exports of refined beetroot sugar from France in 1867 were 87,592 tons, against 90,063 tons in 1866, and 112,230 tons in 1865. In these totals the exports to Great Britain figured for 17,994 tons, as compared with 9522 tons in 1866, and 14,142 tons in 1865.—*Grocer*

☞ THE OHIO STATE FAIR will be held at Toledo from the 21st to the 25th days of September.

PEAT.—The *Welland Tribune* learns that the company which has undertaken the work of developing the peat beds in this county have had a number of men employed for some weeks past in laying tramways from the bed to the banks of the Welland Canal. We learn that it is the intention to begin the work of excavating the fuel as soon as the pressing machines can be got on the ground, probably some time during this month.

The Apiary.

The Bee Moth

THIS insect is justly regarded as one of the worst enemies of the honey-bee, as its depredations involve the destruction of combs, brood, and stores. Happy the bee-keeper who knows how to exclude it from his hives, or arrest and prevent its devastations.

The scientific name of this pest is *Tinea mellonella*. There are said to be three kinds of it, one of which has been called *Tinea cereana;* but it seems probable that two of these are mere sexual varieties. That of medium size is regarded as the most destructive. The smaller kind is often seen at dusk in summer evenings, hovering about in front of the hives, seeking entrance. The bees evidently become excited on noticing its approach, and angrily resist it. When successful in effecting an entrance, these moths deposit their eggs in the droppings and refuse-matter on the bottom-board, if any be found there; and from it the larvæ, when hatched, derive their nourishment. The larger kind does not usually make its way into the hive till after the smaller kind have effectually secured possession and made extensive progress in the work of devastation. The color of the medium kind is grey. The egg greatly resembles that of the queen-bee. The fullgrown moth may often be seen sitting quietly on a hive, near its entrance or on some projecting ledge or corner. It frequently deposits its eggs in cracks or crevices through which the heat and odor of the hive escape.

As soon as the larvæ are hatched, they endeavor to crawl into the hive through some opening or cranny, however narrow; and if successful, at once take post in and live on the offal and particles of wax they may chance to find on the bottom. They grow very rapidly, mount the combs as soon as they can reach them, and enter the cells. Arrived there, they speedily construct their galleries, tunnelling passages along the common base of the cells, and extending their devastating course towards the centre of the comb, in quest of cells containing pollen. These appear to be their favorite resort, whence they advance revelling in the delights of havoc and destruction. Nor do these portions of comb which contain brood escape attack. The defenceless larvæ perish when the side-walls of the cells are broken down or undermined; and the ruin of the colony is sure to follow quickly, if the bee-keeper do not come to the rescue. Even though a worker occasionally lays open the gallery, the passage is too narrow to permit her to enter and dislodge the insidious foe, which, moreover, quickly retires to a safe distance.

Since only feeble stocks are overpowered by the worm, or such as, not being very populous, are at the time engaged in rearing a queen, and are consequently daily growing weaker, it occasionally happens that the bees are literally crowded out and constrained to abandon their mansion. The inexperienced and inexpert bee-keeper, seeing numbers of workers constantly massed at the entrance, fancies he has a strong and growing colony, till suddenly, on some fine afternoon, the bees come tumbling out helter-skelter, and hastily take French leave of their astonished owner. If such absconding colony was well supplied with comb, a strange spectacle of universal ruin will present itself when the hive is opened. A mixed multitude of larger and smaller cream-coloured worms with brownish heads, will be seen hastily wriggling into their hiding-place—a dark, web-strung pile of mingled excreta and crumbling comb. Hosts of fluttering moths, too, hover like harpies on dusky wing, and a nauseous odor exhales from the filmy and cocoon-spangled mass. All this is disheartening; but if the dismayed bee-keeper would have his good humor restored, and himself put in the mood of paying more heedful attention to what may thenceforward be going on in his hives, let him carry the non-moth-proof box or basket to his hen-yard, and present its contents as a *bonne bouche* or tit-bit to his Shanghais and Brahma Pootras, and he will see such an eager rush and scramble and hasty gobbling up of the multitudinous host that worked him harm, as well may mollify his temper, and restore his equanimity—so far as a hearty laugh can thereto contribute.

Then, *for prevention*.—1. Watch your hives closely, especially those that have swarmed, or that are rearing queens. 2. Frequently cleanse the bottom-boards of your feeble stocks, and inspect the combs. 3. See whether there are any black droppings under the combs, or whether the bees are carrying such out. If so, search for and remove the worm.

For *preservation of combs*—1. Insert them at times for cleaning in the hives of your stronger colonies; and 3, keep them in an air-tight box, and fumigate them every two or three weeks with fumes of burning sulphur.

In elevated mountainous districts, moths are not apt to be troublesome, but in lower level and warm districts they will, without great care, be found a numerous and intrusive pest.—*Bee Journal.*

How do Bees Track Honey?

In the second edition of "The Bee Flora of Germany and Switzerland," its author, Dr. Alefield, undertakes to show, by very plausible reasoning, that bees, when in quest of honey or pasturage, are guided not by the sense of smell, but by that of sight.

Little as might be objected to this theory so long as it regards only individual bees in search of honey, there still remains the query, how do other bees become apprised of the discovery, and by what means are they guided to the spot where the blossoming field, or the accessible honey-pot is found? In my view, Dr. Alefield should have answered this query; and as he has not done so, I submit the following solution:—

Every observant bee-keeper is aware that the returning honey-laden bee is bee-sniffed as she drops on the alighting-board, or passes through the crowd at the entrance of her hive, and is at times even very officiously overhauled and pertinaceously detained by the vigilant guards there stationed. Whether or not she gives up to them any portion of her gleanings, matters not. She is examined and diligently watched, and when she re-issues, after storing away her contributions to the common fund, the guards, now on the "*qui vive*," eagerly brush the dust from their eyes with their front feet, and keenly scrutinize the direction of her flight. Before losing sight of her, one of the guards follows in hot haste; a second pursues in the same airy path, and is rapidly succeeded by a third and fourth; and thus, in due order and succession, they arrive at the place where the first prospecting explorer accidentally discovered the coveted nectar or exposed honey-pot.

This view is sustained by the facts—

1. That the bee of one colony in an apiary will sometimes alone frequent a spot, or even rob a hive, before those of a neighbouring colony will seem to be conscious of the game or participate in the spoil. There must consequently be some mode by which the bees of the same colony are conducted to the place frequented. And the explanation I have given seems to be the most simple and natural.

2. That during the gathering season, the bees do not leave their hives in masses in the morning, but separately, one after another, in Indian file, passing on in a sort of "goose march" in the air to their journey's end; and the line of march being once established, bees of other colonies not yet conversant of the way, may join in the procession to the quarry, and become partakers of the common spoil.—*Ib.*

Bees in Cities.

SHIRLEY HIBBARD tells us that in London all the honey made by the city bees is more or less contaminated with soot. One cap of honey gathered in 1858, was so discoloured with soot that it took two months to settle, and then the bottom of the jar was coated with a black deposit, although the honey itself became comparatively clear.

Fortunately for us in America, this is a result which is very rarely met, and in almost any of our cities bees may be kept, and will produce clear and beautiful honey. We know a young artist in one of our cities, who kept a hive of bees in his studio. A window was devoted to their use, one of the lower panes of glass being about an inch and a half too short, so that an opening was left, through which projected a funnel-shaped tube made of thin wood. This tube was attached to the hive, so that the bees had perfect egress without interfering in any way with the other occupants of the room. In winter, the hive with its occupants was removed to a cool garret. The hive was very large, and we understood that in three years it had out-swarmed.—*Cor. Co. Gent.*

Horticulture.

Garden Culture of Native Wild Flowers.

Our attention was arrested the other day by a wagon-load of Moccasin plants exposed for sale in the streets. To those who were unfamiliar with these most lovely natives of our woods it must have caused no small surprise to see so much beauty and delicacy of form and colour in a wild flower; indeed, we could hardly persuade some that they were not hot-house plants. But in truth, and the lover of nature knows it well, there are numbers of our native plants that far exceed in grace and elegance their much prized sisters of the garden. In Floriculture, as alas! in everything, fashion reigns supreme; and here, as everywhere, her mandates are not always those of common sense or of good taste. Every herb and tree is in its own way beautiful, but there are degrees and varieties of beauty, and the meed of popular favor is not invariably given to the most beautiful. The changes which artificial treatment produces in flowers are besides not always improvements. The doubling, for instance, of daffodils, violets, and tulips, is, to our mind, a questionable gain in the mere mass of colour at the sacrifice of beauty and elegance of form. Perhaps our taste is peculiar, but we venture to think the garden Balsams unworthy of comparison with their rustic cousin, the yellow Touch-me-not. We confess to a very qualified admiration of Petunias, China Asters, and some other staple favorites, and are quite unable to discover the principle on which, while Hollyhocks are excluded as vulgar, the most assiduous attention of the gardener and the most honorable place in the flower show are awarded to the Dahlia. Why should a certain class of garden flowers monopolize our regard, and be considered by some as almost alone worthy the name of flower, whilst others, native to our soil and equally lovely, are passed by or perhaps looked upon merely as weeds? Is a plant less beautiful because it grows spontaneously in our woods? Must it be far-fetched and foreign before we condescend to prize or admire it? The Hepatica and the Dog-tooth Violet, so common here, are assiduously cultivated in English gardens, and some of our more beautiful native species bring high prices in the market there; as an example, we may mention that a number of Moccasin plants sent out from this country were sold in England for twelve shillings apiece, and specimens of our Pitcher-plant for as much as a guinea each. Are these unworthy of culture here? We have seen and often admired cottage gardens that owed all their attraction to a tasteful arrangement of Ferns and native wild flowers.

Comparatively few of our farmers, we are sorry to say, have any portion of their land devoted to mere ornamental purposes; many have given up even the pretence of a flower garden, whilst the attempts of others have resulted in failure. Some have no love for such foolish trifles, and some have no time to spare for this object. With the first we can hardly reason, and can only hope that their children may be better taught. To the other class we would suggest that perhaps they have attempted too much. They have begun, it may be, on too large a scale, and have been really unable to devote sufficient time for keeping so much ground in good order. But if they would curtail their ambition somewhat, they might perhaps succeed better.

Suppose, now, a plot of ground of moderate size has been set aside and prepared for a flower garden, what, it may be asked, shall be planted? We would strongly urge the farmer, who has such peculiar facilities for the innovation, to try at least the effect of substituting for those plants which he can only procure for money, or at least of adding to them, a few of our native wild flowers. There are some common cultivated flowers that have for centuries been deservedly universal favorites. First among these is the Rose. This queen of flowers affords an instance where native beauty has been enhanced by cultivation. The wild roses of our land, charming as they are, would be preferred by few to that glory of our gardens, a perfect double rose. The same advantage of cultivation must be conceded in the case of Pansies and many other triumphs of the horticulturist. But, as we have already remarked, there are not a few cultivated flowers decidedly inferior to the wild species of the same genus. The wild Columbine (*Aquilegia Canadensis*) is a much more graceful flower than the Columbine of the garden, and many other similar instances could be adduced.

It is often said that wild flowers will not grow in gardens, or at least will not thrive. They may grow, we are told, for one season, but after that they will die away. This result arises, no doubt, from inattention to the natural condition of the plants in question. If a plant is taken from the recesses of a deep swamp, and placed in the light and dry soil of a garden, exposed to the full glare of the sun, we can expect no other result than a speedy death. But where proper attention is paid to the natural habit of the plant, and pains taken to supply conditions of soil and shade and moisture similar to those by which the transplanted flower was surrounded in a state of nature, success will generally reward our care. When the Victoria Regina was first introduced into England, the hopes entertained of its flowering were repeatedly disappointed; numerous experiments were tried, until by a careful study of the habits of the plant in its natural state Sir Joseph Paxton was enabled to follow these so closely as to obtain complete success. Sir Joseph aimed carefully to reproduce the natural conditions even in such minute particulars as the slight undulation or rippling of the water which takes place in the native rivers of this magnificent and royal water lily. Such refinements as these are, of course, impossible to the ordinary horticulturist, nor are they necessary. All that is required in most cases are the conditions already specified, namely, to place the plant in a soil as nearly resembling that from which it was taken as possible, and in a similar situation as repects light and shade, and the degree of moisture usually present.

Among our native flowers suitable for cultivation may be mentioned one of the commonest, earliest, and handsomest of Canadian spring flowers, the Trillium of the woods. These will thrive well in a garden. Many species of Violet will also repay cultivation, although our native species are destitute of the delightful perfume of the English Violet (*Viola Odorata*). Some of our indigenous Orchids are especially handsome. Of these the Moccasin plant, of which we give an illustration, is perhaps the most superb, and would be justly prized in any conservatory. This species is the showy Lady's Slipper (*Cypripedium spectabile*) Less brilliant in colouring, but, if possible, even more elegant in form, is the common yellow Lady's Slipper (*C. pubescens*). These would form the most lovely additions to a garden that can be imagined, and we have known them thrive in such a situation. Our wild Phlox (*Phlox divaricata*) flourishes very well, and equals in beauty any of the cultivated varieties; and the tall Anemone. (*Anemone Pennsylvanica*) when in a rich cluster is a very effective ornament. Few plants surpass in elegance the various species of Fumatory, of which we have some choice representatives, for example that known by the name of Squirrel Coen (*Dicentra Canadensis*), or the Climbing Fumatory (*Adlumia cirrhosa*), a most elegant trailing plant of rapid growth and singularly graceful character, especially adapted for rock work. These are of easy cultivation. Many others besides these above mentioned will be readily found in any rural neighbourhood.

While we would recommend the introduction of these ornaments of our native wilds into the garden, we cannot close this article without a protest against the barbarous practice sometimes indulged in by collectors—never by the genuine naturalist—of carrying off by the roots every specimen of a rare plant to be met with in any particular locality. The man who has thus extirpated, perhaps, some beautiful and rare flower, has perpetrated a wanton act of spoliation which no ordinary scientific gain or horticultural success can excuse or cancel; and must be written down a Goth by all true lovers of nature.

Coal Oil as an Insect Extirpator.

We mentioned briefly in our last, that a correspondent had warned all gardeners against the use of oil as a remedy for insect pests, as it was death to all the plants touched by it. Since then we have received like testimony from several parties who have tried the same experiment, and one correspondent reflects rather severely upon us for giving publicity to so mischievous a recipe. We can only say that we copied the article from one of the ablest and most trustworthy horticultural publications in the world, the "*Gardener's Monthly*," and duly credited it to the source whence we obtained it, so that the recipe was given on the responsibility of another journal. Having reason to yield entire credence to the statements of our correspondents, we beg to call the attention of the "*Gardener's Monthly*" to this matter, and shall be happy to lay before our readers any explanation or item of additional information that may come to hand from that respectable source.

Timely Hints to Fruit-Growers.

As soon as a plum or cherry knot can be discerned swelling out, cut it away and burn it. When you see any sign of change in colour on the bark of your pear trees, cut away and burn that also. And when you see any black marks on the leaves of apple trees, livid spots on the grape foliage, or any other change whatever from the normal hue, cut away and burn the whole thing. By this means shall you prevent their seeding—and thus only can you ever keep in check a scourge which is really, in some neighbourhoods, a mighty obstacle to success.

So with insects; as a soldier would say, they must be attacked directly in front. Strategy is not of much use. Hand picking, tree shaking, and collecting grubs and larvæ, must be the chief reliance of the practical man. He who has not "time" to attend to these things, will have to buy his fruit of those who have. It seems hard-hearted to pronounce such a doom, but we feel it to be a truth; and the sooner all realize it the better, if it must be.—*Gardener's Monthly.*

☞ A correspondent of the *Iowa Homestead* says that when he wants to prepare labels for his trees and plants he makes them of cedar, then takes a Faber No. 1 pencil, rubs a little linseed oil on the place where he intends to write, and writes before it gets dry. By this means the name will remain indelible for many years.

Summer Meeting of the Ontario Fruit Growers' Association.

The Ontario Fruit Growers' Association held their summer meeting in the Agricultural Hall, in this city on last Wednesday. There was a very large attendance of members and others interested in the objects of the Society. The chair was occupied by the President, W. H. Mills, Esq., of Hamilton. Among those present there were besides the Secretary, D. W. Beadle, Esq., of St. Catharines; Hon. W. Allan, Messrs. Geo. Leslie, senr. and jr., John Gray, John Fleming, James Gibson, H. Brown, and W. Vair, of Toronto; Rev. R. Burnet, W. Holton and L. Springer, of Hamilton; N. Hamilton and C. Arnold, of Paris; Dr. Cross and W. Eccles, of St. Catharines; F. Chisholm, of Milton; W. Reid, of Port Dalhousie; D. Caldwell, of Galt; W. W. Cook, of Cooksville; P. T. Springer and S. M. Durkee, of Wellington Square; S. Lewis, Winona; L. Bishop, St. Thomas; A. M. Smith and D. Van Duser, of Grimsby.

Some very splendid specimens of fruit were exhibited, among which, as might be expected from the season of the year, strawberries predominated. Mr. George Leslie sent some really magnificent samples, of the following varieties:—Agriculturist, Jucunda, Trollope's Victoria, Russell's Prolific, La Constante, and Dr. Nicaisse, the latter a new variety, now first fruited in Canada. Mr. J. Gray sent specimens of Triomphe de Gand and Wilson's Albany. Mr. H. Brown, of this city, exhibited a dish of remarkably fine Trollope's Victoria, the size and quality of which were much admired. A new seedling strawberry, called Bishop's Canada Seedling, was shown by Mr. Luke Bishop, of St. Thomas. There were also on the table a few plates of cherries, Mr. Gray exhibiting the variety known as Governor Wood, and Mr. Leslie the Brockpert Biggarean. A plate of early ripe apples, nectarines, apricots and peaches, grown in an orchard house, were exhibited by C. S. Gzowski, Esq. There were very fine specimens of the fruit, fully ripe and of excellent flavour. A few hybrid seedling raspberries, very early, for they were already ripe, were shown by Mr. C. Arnold. Nearly all these specimens formed subjects of discussion in the subsequent proceedings.

The business of the meeting commenced by the Secretary reading the minutes of the last meeting held at Hamilton, which were confirmed. The Directors then submitted to the Association the following report of the Committee appointed to examine Mr. Luke Bishop's seedling strawberries.

To the Board of Directors of the Fruit Growers' Association of Ontario.

The Committee appointed to repair to St. Thomas and there personally inspect the new seedling strawberry growing upon the grounds of Mr. Luke Bishop of that place,

Would Respectfully Report:

That they have examined the seedling strawberry raised by Mr. Luke Bishop, of St. Thomas, at his grounds:

That they find the plant to be a strong and vigorous grower, coarser in foliage and more rank than the Triomphe de Gand; in habit reminding one of Russell's Prolific:

That the flowers are hermaphrodite, but only six or seven berries are formed upon each foot-stalk, and these very evenly developed in size:

That the berries may be justly said to be of large size, but not monstrous; in color they are bright red, and make a very handsome appearance. The flavor is particularly agreeable, not too acid like the Wilson, but more decided than the Triompho de Gand, an unusual mingling of the Pine and Hauthois flavors without the excessive distinctness of the latter; while the fragrance is more than usually abundant, filling the room from a plateful of fruit. The berry is not as firm as the Triomphe de Gand, and will not bear transportation over long distances as well as that variety:

That in productiveness it is not equal to the Wilson, though the fruit is more uniform in size, while the crop seemed to be fully equal to the Triomph de Gand under most favourable culture. The plants set last August showed a very good amount and size of fruit, particularly those from which the runners were kept off; plants allowed to run together so as to form a thick bed were deficient in fruit. No doubt this variety will succeed best cultivated in hills.

That the Committee can not speak of the hardihood of the plant further than to say that the plants upon Mr. Bishop's Grounds were very healthy, and that the better to test the qualities of this seedling, Mr. Bishop has already placed some of the plants in the hands of the Directors, with Mr. Arnold at Paris, President Mills, at Hamilton, and the Secretary at St. Catherines.

That we commend this new seedling strawberry to the attention of amateurs on account of its fine flavor, delightful perfume, handsome appearance and general uniformity of size.

Your Committee take the liberty of suggesting to the Directors the propriety of establishing a rule that before appointing a Committee to examine seedling fruit on the grounds of the producer, such fruit shall have been exhibited at least once at some meeting of the association; also to state that they were deeply impressed with the importance of diffusing popular entomological information by witnessing the entire defoliation of nearly every orchard between London and St. Thomas, and to suggest the propriety of appointing a suitable person Entomologist to the Association, to whom can be referred all matters relating to insects injurious to fruit culture as they may arise, and who will be able to investigate their habits and report thereon.

All of which is respectfully submitted.

WM. H. MILLS.
D. W. BEADLE.
WM. SAUNDERS.

July 1st, 1868.

A committee was next appointed, consisting of Hon. W. Allan, C. Arnold, W. Holton, and Geo. Leslie, sen., to prepare a programme of subjects for discussion. These gentlemen having retired for consultation, shortly returned with their recommendations, embracing the following topics:—

1st. The merits of the different varieties of strawberries at present on the table.

2nd. The merits of any new varieties of strawberries, and whether any of them can be specially recommended, either as an earlier sort than those at present in general cultivation, or as coming in later and supplying the market between the general strawberry crop and the ripening of the raspberry crop.

3rd. The best six varieties of cherries for general cultivation, and if any and what varieties succeed best as dwarfs.

4th. The best four hardy varieties of raspberries for general cultivation.

5th. On insects injurious to plants, and the best modo of exterminating them.

The first of the foregoing subjects was at once taken up.

Mr. G. Leslie, senr., spoke very favourably of the Agriculturist, having found them, especially on a clay soil, very productive, even more so than Wilson's. He considered the variety worthy of more extensive cultivation. The Jucunda, also grown by him on stiff clay soil, had proved a fine berry, though less productive than the preceding; in flavour not quite equal to the Triomphe de Gand, but of good quality for carriage. Russell's Prolific he considered should be struck off the list, as it does not set its fruit well, and is in many respects inferior to other varieties. Trollope's Victoria yielded a very large fine fruit, well suited for the table, but was a poor bearer and rather tender, and altogether fit only for amateur cultivation. La Constante had the advantage of being a late bearer, the specimens shewn being the first gathered and not yet quite ripe, but he had found it a poor bearer, and could not recommend it for cultivation. The few specimens of the new variety, Dr. Nicaisse, he could not say much about, as this was the first occasion of their being fruited in Canada.

Mr. C. Arnold had not a very high opinion either of the Agriculturist or the Jucunda; indeed he had not found any variety equal to the Wilson.

Mr. N. Hamilton, of Paris, had found the Triomphe de Gand, taken all together, the best variety for his own use, though the Wilson was perhaps a better market berry.

Hon. G. W. Allan had formed a very favourable opinion of Trollope's Victoria, and considered it a very suitable variety for the amateur. In rich clay loam he had found it bear well and the fruit was of fine size and delicious flavor.

A number of the members present expressed their opinions on the varieties under discussion. The Wilson's Albany was admitted by all to be the best market berry, though some objected to its acidity, which was, however allowed to be in some measure due to its being often gathered before it was fully ripe. The Agriculturist was highly spoken of, Mr. Read, of Dalhousie, remarking that it had one proclivity and

excellence in its habit of stooling rather than making runners. He had also found it best adapted for clay soil. In this opinion Mr. Smith and others fully agreed. Next to the Agriculturist and the Triomphe de Gand the Jucunda received the commendation of those who had grown it. Mr. Gray confines his cultivation to two varieties, Wilsons and Triomphe de Gand. The latter he considered the finest flavoured strawberry we have, the former he had found an enormous bearer. He cultivated in hills, carefully taking off the runners. Dr. Cross, of St. Catharines, after having tried most of the varieties under discussion, now only grew Wilson's, Hovey's, and Triomphe de Gand.

After a short recess the second subject was taken up for discussion, and in connection with this topic Mr. Bishop gave some account of his now seedling strawberry, a cross between Triomphe de Gand and Wilson's Albany. He had now had it three years. It was, he said, rather earlier than Wilson's and will last longer; he considered it also as hardy a variety as any that we have in cultivation. In crossing to procure the hybrid, he had fertilized sometimes with the Triomphe de Gand, and sometimes with the Wilson.

Mr. Beadle said that he considered the flavor of Mr. Bishop's seedling to be its chief excellence, in which respect it was superior to most of the varieties generally cultivated.

Mr. Mills fully endorsed what was said by Mr. Beadle, and spoke in addition of its peculiar and delightful fragrance.

The specimens on the table were exhibited under the disadvantage of having been gathered on the day previous and being over ripe. Notwithstanding this drawback, the flavor was to our taste very agreeable, and we were favourably impressed with the general excellence of the seedling, and considered it deserving of a careful trial.

The following resolution, moved by Mr. C. Arnold, seconded by Mr. Gray, was carried unanimously—

"That the thanks of this Society be given to Mr. Bishop for his efforts in producing a new seedling strawberry, and that it be recommended for further trial."

At this stage of the proceedings the following resolution was moved by Mr. Leslie, Junr., seconded by Mr. Gray, and carried—That the recommendation of the Fruit Committee contained in their report on Mr. Bishop's Seedling Strawberry, viz: "that before appointing a committee to examine seedling fruit on the grounds of the producer, such fruit should have been exhibited at least once at some meeting of the Association," be adopted as a rule of this Society.

The next subject in order, namely, the best six varieties of Cherry, was then taken up, and after some discussion, a vote on the question was taken, resulting in the recommendation of the following in the order named, the first three receiving each an equal number of votes: Governor Wood, Black Eagle, Elton, Black Tartarian, and Black Heart.

Mr. Gray spoke well of the wild cherry of the country as a stock for grafting the cherry upon; not the bird cherry or choke cherry, but one bearing clusters of red berries in the same manner as the cultivated kind.

The fourth topic for discussion was then introduced by Mr. Arnold, who exhibited some white raspberries, ripe at this early season. They were a hybrid between the White Marvel of four seasons and the White Cap. Mr. Beadle thought the Franconia, Philadelphia, Arnold's red, and Arnold's white hybrids to be the most hardy. Mr. Chisholm found the Black Cap to be the hardiest. Mr. Eccles considered the Fastolff the most excellent in this respect. Mr. Gray preferred the Brinckle's Orange and the red Antwerp. Mr. Read grows successfully Brinckle's Orange, Fastolff, Franconia, and Doolittle's Black Cap. Mr. Arnold finds Franconia and Belle de Fontenay the hardiest European sorts, but none of them can be depended upon, while the Philadelphia is perfectly hardy, and is among raspberries what Wilson's is among strawberries. Mr. Caldwell, of Galt, finds the Franconia and Philadelphia the hardiest. Dr. Cross prefers the red and white Antwerp and Franconia.

The fifth and last subject came up too late in the day for any prolonged or adequate discussion. Mr. Beadle stated in answer to enquiry that the caterpillar which had proved so destructive to the orchards between London and St. Thomas, was a species of tent caterpillar, not the common variety, *Clisiocampa Americana*, known by its large webs or tents, but a closely allied species, *Clisiocampa Sylvatica*, which does not make so large a web, and is therefore in its early stages not so easily detected. In the district alluded to they occurred in countless myriads, and had been mistaken by some for the army worm, probably because "their name was legion." A few remarks were made in reference to that ubiquitous pest the Curculio, the majority of the members present concurring in the opinion that jarring the trees, collecting the beetles, as they fell and destroying them, was the only effectual remedy. Mr. Arnold, however, stated that he had failed to make any impression on them by this method, and had found liming or whitewashing the ground about the trees more efficacious.

Mr. Beadle presented a report on the the Fruit Prospects of the Niagara District, but said that he would not detain the meeting by reading it then, but would leave it with the Editor of THE CANADA FARMER for publication in that journal. We append the document to this report. The observations on the strawberry may be deemed now beyond their season, but are valuable as a record of experience.

After a very interesting session the meeting adjourned.

During the latter part of the proceedings, the chair was occupied by Mr. Leslie, senior, Mr. Mills having been obliged to return to Hamilton early in the afternoon. The thanks of the meeting were voted to the chairman.

THE FRUIT PROSPECTS IN THE NIAGARA DISTRICT.

To the Fruit Growers' Association of Ontario.

When the spring opened, and the fruit trees put forth their buds and blossoms, there seemed to be a promise of an abundant crop of fruit, and expectations were entertained of a more than usually large supply. But as the season advances we find that many of our fruit trees are but very sparsely set with fruit, and that from one cause and another the quantity of fruit is likely to fall far short of our previous expectations.

At the time that our apple and pear trees were opening their blossoms we were visited with a season of protracted rains, the prevalent wind was from the north-east, and was very bleak and chill. Owing to this circumstance, the pollen of the flowers was but imperfectly developed and was washed to the ground. Had the air been usually dry and warm, the delicate grains of the pollen would have been carried by the currents of air, and by the busy insects, to the stigmas of the flowers, resulting in an abundant fertilization; but on the contrary, during the period of fructification the pollen was kept wet and paste-like, so that it could neither float in the air nor adhere to the hairy legs of the bees and other insects, and so failed of reaching its nature-intended destination. Hence but a small proportion of the fruit is set, and our apple trees and pear trees, so loaded with flowers, will yield but little fruit.

To this cause may also be attributed the curled leaves on the peach. Any one who has grown the peach under glass knows how sensitive the foliage is, when it is just putting forth, to any chilling draught or current of air, and has seen the leaves curl and at length drop off from this cause, just as they have curled and dropped off in the open air this spring. It may be that of late years we have been much more subject to the chilling easterly winds in the spring, that from the clearing up of the forest those winds have a longer sweep and greater power, and that our peach trees, from continued exposure to debilitating influences, are become less vigorous and more sensitive to atmospheric changes. Be this as it may, the upleasant fact remains that for a number of years our peach trees have more or less been afflicted with this curl of the leaf in spring, resulting in the loss of the first foliage and a dropping off of the fruit.

As the season has advanced the pear trees have again been afflicted with the blight, large branches have turned black in the bark, the leaves have withered and turned black, the fruit on these branches shrivelled and dried up, and the trees look as though they had been scorched with fire. It is not necessary to offer any speculations upon the nature and cause of this disease; as yet it is shrouded in mystery, and he who shall be able to discover a preventive or a cure for this destructive disease will confer a boon of no ordinary value upon the cultivators and consumers of the pear.

The strawberry crop has not been as large as usual this season. The deficiency is probably owing to the long-continued drought of last summer. Plantations that were carefully covered during the winter fell short full as much as those that were left unprotected, and of all the varieties usually grown in this Township, the French's Early and the Wilson seemed to show the greatest deficiency, as compared with their usual yield, while the Triomphe de Gand came more nearly up to its usual standard.

Of the newer varieties not one has been able, under the treatment given, to equal the Wilson for general cultivation and productiveness. The "Agriculturist," with special care and high feeding, will yield some monstrous berries, but beyond that has nothing to commend it, and in that respect must yield to the "Dr. Nicaise," whose monstrous fruit astonishes the natives. The celebrated "Tribune Strawberries" have failed to exhibit any special excellencies, and will soon be dropped from cultivation. The "Jucunda" has so far done the best of the newer sorts; its berries are large, more nearly uniform in size than the Wilson, of a better colour, and the crop is larger than that of the Triomphe de Gand. The "La Constante" has not yet been sufficiently grown here to judge of its merits. The "Russell's Prolific" fails to fertilize itself, requiring Longworth's Prolific, or some other variety abounding in pollen and flowering at the same time, to be planted near it, in order to perfect its fruit. The writer is disposed to believe that the "Russell's Prolific" and the "Jucunda" flourish best in a strong clay loam. The strawberry cultivator is not likely to lack new varieties with which to experiment for some time to come. Not less than fifty new seedling berries were exhibited at the last meeting of the Western New York Fruit Growers' Society, held on the 24th June, each one supposed to possess some new excellence and special claim upon the attention of the public. There is, however, yet wanted a strawberry of vigorous habit and hardy constitution, as productive as the Wilson, berries large and more nearly uniform in size, bright colour, high flavor, sufficiently firm to bear transportation well, and ripening after the Wilson is gone.

Our cherry crop was thinned from the same cause which lessened the apples and pears, but the Heart and Bigarreau Cherries have thus far suffered less from rot than they did last year, so that we have more fruit than we realized last season. The "Reine Hortense" and "Belle Magnifique" and "Late Duke" varieties are yielding little or no fruit, but the "Mayduke" has an abundant crop.

The currant worm and gooseberry saw-fly are much less numerous this season, whether owing to the use of White Hellebore, or to one of those unaccountable disappearances which every student of entomology has noticed, it may not be easy to determine. The fact is none the less gratifying, and our gooseberry and currant trees are yielding a good supply of fruit. Even those who continue to cultivate the English varieties (with a perseverance worthy of better success) are hoping to escape the fatal mildew this season, at least in a good degree.

Of the raspberries, several varieties passed through the winter either wholly uninjured or but slightly hurt, while even the tenderer sorts will yield some fruit. The "Hornet" and "Pilate" suffered but little, "Brinckle's Orange" and "Franconia" still less, and the "Philadelphia" and "Arnold's White" and "Arnold's Red" not injured at all. The "Naomi," judging from two years' trial, is but little more hardy than Francoula. "Souchetti" is as tender as the old White Antwerp. There is every promise of an abundant yield of Raspberries, and if we are succeeding in obtaining a class of raspberries that will endure our winters without protection, with juicy, high flavored, and large sized fruit, a new impetus will be given to raspberry culture. Of the "Clarke" and "Davison's Thornless" varieties it is too soon to speak.

Blackberry culture is as yet very limited in this vicinity. The "New Rochelle" is large and very productive, but the plants sometimes are a good deal killed back in winter, and the fruit, unless left on the vines until ready to drop off, quite too acid. Experiments are being made with the "Wilson's Early" and the "Kittatiny," in hopes of finding something more desirable.

Those who have been faithful in carrying on the war with the curculio, or plum weevil, are reaping the reward of their labour in a fine crop of smooth, uninjured plums; several have found that a little well directed labour in jarring down the insects, and destroying all fruit stung by them, secures a fine crop of plums at but little cost.

The grape vines have bloomed freely, and are setting their fruit well, so that there is every prospect that when the Association holds its October meeting in St. Catharines, the Niagara District will be able to exhibit an abundance of grapes.

From this hurried survey of the fruit crop in this vicinity, we can see that the Fruit Grower has his difficulties to meet, but that on the whole he has much to cheer and stimulate him to careful experiment and untiring zeal.

D. W. BEADLE.

Grantham, July 7th, 1868.

Hamilton Horticultural Show.

To the Editor of THE CANADA FARMER:

SIR,—As it may be interesting to many of your readers to note the progress that horticulture is making in Canada, I send a brief report of the recent Hamilton Fruit Show. The Directors of the Hamilton Horticultural Society held their second show of the season in the large and commodious Drill Shed on the first of July (Dominion Day.) The entries were over 800, embracing many fine varieties of flowers, fruits, and vegetables, amongst which I noticed a very fine collection of orchard house trees, figs and peaches, loaded with fruit; also some grape vines, grown in pots, and very well fruited. Next in order were very fine collections of greenhouse and stove plants, many of them in full bloom. The growers certainly deserve great credit for the skill and care bestowed in producing such fine specimens.

In Fruit, the strawberries being in the greatest perfection at this season, many fine dishes were shown. Wilson's Albany and Triomphe de Gand seemed to take the lead. There were also some very fine samples of the Jucunda and the Agriculturist, with some other varieties not so well known. Of cherries I noticed two fine dishes of black hearts, but the general crops not being ripe, the show in this department was limited. In apples a few specimens of well-kept Roxburg Russets were on the table. In the Vegetable assortment the show was extensive and fine, embracing collections of cucumbers, tomatoes (ripe), cauliflower, very fair onions, carrots, cabbages, lettuce, radishes, and many other varieties in great perfection. I would notice particularly the collection of potatoes. The kidneys were very fine. In sound potatoes the early Goderich will no doubt take the lead.

In concluding these brief remarks, I would just say a word to other Horticultural Societies—Our Great Exhibition takes place at Hamilton this fall, and it behoves all the Horticultural Societies of the province to stir up their members to send up their very best productions on the occasion, so that Canada, and the Province of Ontario, may show to the world what we can produce.

HORTENSIS.

Western New York Horticultural Society

THE Annual Summer meeting of the above Society was held in Rochester, June 24th. Strawberries were shown in great variety, and a parcel of Coryelle grapes preserved from last autumn's vintage, and retaining their freshness to such a degree that they bid fair to show well for some weeks yet. Reports in reference to fruit prospects were not flattering; apples and pears especially are likely to be a light crop. The following questions were reported for discussion by the business committee, and most of them were taken up by the meeting.

"*First*—What are the best varieties of fruit for canning, and what is the best manner of doing it?

"*Second*—What is the best size of can for keeping fruit, and the best material to make cans from?

"*Third*—Is there any method of preventing the ravages of the army worm in apple trees?

"*Fourth*—What is the best remedy for the steel-colored grape beetle and grape worm?

"*Fifth*—Is there any remedy for the insect that preys upon Arbor Vitæ?

"*Sixth*—What new varieties of strawberries promise well?

"*Seventh*—What are the three best varieties of currants?"

The peach, pear and quince appeared to be the favourite fruits for canning. Glass cans were preferred for domestic use, tin ones for transportation, and the gallon size found most favour. Much discussion was had on the insect queries, without eliciting anything of special interest. Copperas water was recommended by one member as an effectual remedy for the grape pests: four ounces of copperas dissolved in a quart of hot water, and then another gallon added. Jucunda and New Prolific were mentioned as promising new strawberries. The currant question was not discussed.

Caterpillars on Gooseberry Bushes.

WE give the following method of destroying caterpillars, on the authority of the *Farmer* (Scottish):—

"This season, as usual, the appearance of caterpillars on gooseberry bushes has caused considerable anxiety in several parts of the country. In many districts in Fifeshire, and particularly at Newburgh, a famed and very extensive fruit-growing strath, this pest is doing much mischief. As in the case of other plagues, sundry remedies are being suggested and applied for the purpose of getting rid of the vexatious visitation, some of which savour not a little of the superstitious. For instance, one party has had twigs of broom stuck in amongst the branches of the bushes; and another has planted rue (*Ruta graveolens*) and chamomile (*Matricaria chamomilla*) plants at their roots, for the purpose of getting rid of the pests. These, nevertheless, may tend in some way in making the caterpillars less voracious on the bushes so treated, for the smell as well as the bitter tastes of such are, doubtless, disliked by insects. Hellebore powder, lime and soot have also been applied, but nothing so effectually destroys the vermin as soot, which is, independently, the cheapest cure and the most certain preventive. When dusted on the bushes after a slight shower has fallen, or after the leaves have been wetted, the vermin will soon drop off the leaves and perish. The application of a sprinkling of dry soot round the roots of bushes, when early digging operations are being proceeded with in spring, will act most successfully in preventing their appearance, and this resorted to in successive seasons will entirely extirpate the pests. In doing so, however, it is necessary at every application to remove the soil slightly round the roots of the bushes, and supply fresh soil in place of that removed. This has been tried with best results for many years.

The Household.

How to make Spruce Beer.

As the season is here when pleasant summer drinks, free from alcoholic influence, are frequently brewed by the housewife, or the well brought up daughters—who ought to be taught a little of everything in the way of household duties—we append the following recipes, which are claimed to be excellent:

1. Take three gallons of water of blood warmth, three half pints of molasses, a table-spoonful of essence of spruce, and the like quantity of ginger; mix well together with a gill of yeast; let it stand over night, and bottle in the morning. It will be in a good condition to drink in twenty-four hours. It is a palatable, wholesome beverage.

2. Those who prefer *mead* have only to substitute honey for the molasses named above, and for one-third the ginger use allspice. Half the quantity of yeast will be sufficient, and the bottling should occur the second day instead of the next morning. It will be fit to drink in four days after being bottled, and will keep for many weeks. A small quantity of alcohol is formed during the fermentation, and this prevents the acetous fermentation so common to spruce beer. The essence of spruce is of course left out in the making of mead. The alcohol formed from the fermentation of honey resembles that found in *metheglin*, while the alcohol formed from the fermentation of molasses is *rum*. Those who imagine that they can make their spruce beer or mead without entirely forming any alcohol are mistaken; but it is present in so slight a proportion as not to be sensible to the most delicate temperance nerves.—*Selected.*

To Cure Meat.

To 1 gallon of water take 1¼ lbs. of salt, ¼ lb. of sugar, ½ oz. of saltpetre, ½ oz. of potash. In this ratio the pickle to be increased to any quantity desired. Let these be boiled together until the dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cool pour it over your beef or pork, to remain the usual time, say four or five weeks. The meat must be well covered with pickle, and should not be put down for at least two or three days after killing, during which time it should be slightly sprinkled with powdered saltpetre, which removes all the surface blood, etc., leaving the meat fresh and clean. Some omit boiling the pickle, and find it to do well, though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar. If this receipt is properly tried it will never be abandoned. There is none that surpasses it, if so good.—*Journal of Agriculture,*

A WITTY REPLY.—"Did you ever see a lunar bow, miss?" said an astronomer to a bright-eyed girl, when talking of rainbows. "I have seen beaux by moonlight, if that's what you mean," was the sly rejoinder.

☞ Sydney Smith wrote to a friend, "Unfortunately the house is full of cousins; would they were once removed!"

DOING IT MILD!—The funniest incident that has lately transpired is the case of a doting mother, who, being satisfied that her child merited a flogging, insisted on his previously being put under the influence of chloroform.—*American Paper.*

AS OUR MOTHERS DO.—We were considerably amused the other evening at three little girls playing among the sage brush in a back yard. Two of them were "making believe keep house" a few yards distant from each other—neighbours as it were. One of them says to the third little girl: "There, now, Nelly, you go to Sarah's house, and stop a little while and talk, and then you come back and tell me what she says about me, and then I'll talk about her; then you go and tell her all I say, and then we'll get mad and won't speak to each other, just as our mothers do, you know. Oh, that'll be such fun."—*American Paper.*

HOSPITALITY.—There are some people who would like to make their friends welcome, but spoil their pleasure by over-exertion. The guests are made to feel uneasy by the visible effort put forth to entertain them. The whole secret of putting our friends at ease, is to be at ease ourselves. And in order to be thus, we must not misinterpret their visit. They have not come to see our furniture, our equipage, our dress, but ourselves. Courtesy, then, rather demands our society and conversation than our silver ware and cookery.—*Anon.*

Advertisements.

First Prize Cheese Vats!

TO THE DAIRYMEN OF CANADA.

THE UNDERSIGNED keeps constantly on hand the following articles: Cheese Vats and Heaters of all sizes and styles. Red Cherry Press Hoops and Followers, (turned). Screws of all sizes and patterns. Carrying Cans and Dairy Pails, of the best material. Bleached cotton Bandage Cloth, imported expressly for the trade; and everything required in the manufacture of Cheese

AT LOWEST REMUNERATIVE PRICES.

☞ My Vats took First Prize and Diploma at last Provincial Exhibition.

Address H. PEDLAR,
Box 100 Oshawa, Ontario.

v5-10-tf

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.

v4-14-tf

TO FLAX GROWERS.

THE undersigned will have, the present season, a supply of FLAX-PULLING MACHINES, which we can guarantee to do good work, having been fully tested last season. New improvements added this year. Send for cut of Machine and Price List.

OSWOLD & PATERSON,
Woodstock Iron Works.

1st May, 1868. v5-9-6t.

SMALL CHEESE VATS!

H. PEDLAR, Manufacturer, will send to any Railway Station in the Province of Ontario, (free of charge,) a first-class Cheese Vat, all complete, to running order, suitable for twenty to thirty Cows, on receipt of $30.

☞ All work warranted to give satisfaction.

Address H. PEDLAR,
Box 100, Oshawa, Ont.

v5-10-tf

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,
Port Dover, Ont.

v4-20-tf

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-tf

Farm of Prospect Hill

TO LET, for a Lease of 10 or 12 years, from and after 1st October next:

Being Lot 16, Con. 12, East Zorra, Oxford, 200 acres, occupied by the heirs of the late W. Dawson, Esq.

This is a first-class farm either for cropping or dairy purposes, and is in a high state of cultivation; 160 acres arable; well watered and fenced. Excellent Dwelling House, large Orchard, and extensive Farm Buildings, suitable for dairy purposes. By gravel road, 6 miles from Woodstock; 1 mile from Strathallen cheese factory.

Should an intending tenant take the stock and crop, by valuation, he could have immediate possession. Apply on the premises, or by letter post paid, to

MRS. DAWSON,
SOUTH ZORRA, ONTARIO.

Prospect Hill, 26th June, 1868. v5-14-2t.

J. H. THOMAS'

FIRST PRIZE BEE HIVES!

Persons desirous of purchasing territorial rights for my Hives, would do well to apply at once, as I will sell for the next two months, Townships at from $20 to $30, and Counties from $50 to $150.

J. H. THOMAS,
Brooklin, Ontario.

N.B.—Parties residing in the Counties of Carleton, Russell, Ottawa, Pontiac, Renfrew, Lanark, Leeds, Dundas, Stormont, Glengarry and Prescott, and desiring to purchase my Hives, must in all cases address their orders to JOHN HENDERSON,
v5-8-tf New Edinburgh, Ont.

ITALIAN QUEENS.

HAVING made arrangements for BREEDING a large number of Italian Queens, I will be able to fill all orders for the same, guaranteeing their purity and safe arrival by express. Have obtained two very fine Queens through Mr. Gray, of Ohio, for breeding purposes, and therefore prepared to furnish Queens of a bright color, and producing fine workers. **Price $5 Each.**

Bee keepers would do well to send their orders at once.

J. H. THOMAS.

JONES & FAULKNER,

(Late J. JONES & Co.)

Dairymen's Furnishing Store!

—AND—

DEALERS IN BUTTER AND CHEESE,

No. 141 Genesee Street, Utica, N. Y.

DAIRY necessaries of every description always on hand, particularly **Pure Annatto**, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.

☞ Special attention given to Canadian orders. v4-19-1t

FOR SALE,

THE thorough-bred short-horn BULL "Desdichado," A. H. B. 5501 / C. H. B. 836

White; calved 26th April, 1863. Price $250.

Apply to J. B. LEWIS, Barrister, &c., Ottawa.

v5-14-1t

GEO. A. DEITZ,

The Great Seed Wheat Grower,

CHAMBERSBURG, Pa., sends free a Descriptive List of the best Seed Wheats in the world. v5-11-6t

Markets.

Toronto Markets.

"CANADA FARMER" Office, July 13th, 1868.

FLOUR AND GRAIN.

The produce market continues quiet. There is rather more firmness in the market, and an advance on flour has been established.

Flour—The market is firm, with an advancing tendency. The demand has improved, and stocks being light, prices have advanced. To-day 100 bbls No. 1 super. sold at $6.40, and 300 barrels do. sold at $6 56. Holders generally are now asking $6 50 for No. 1 super. A 100 barrel lot of spring wheat, extra, sold at equal to $6 60 here.

Wheat—There is more firmness in the market, and holders have finally advanced their prices. For spring wheat $1 45 is now generally asked. We heard, however, of no sales at that figure. Fall wheat is offering at from $1 48 to $1 53 according to quality. $1 53 was offered to-day for a lot of choice fall, and refused. We heard of no sales of wheat to-day.

Oats—The market has advanced. For retail lots 55c. is now asked.

Barley.—Nothing doing.

Peas.—The market is firm. We heard of no sales to-day. Worth nominally from 85c. to 88c.

Eggs—Scarce, and in good demand. Selling at from 14c. to 16c.

Butter—Dairy tub per lb. 13c. to 14c.; store packed 11c. to 12c.

Cheese—10c. to 11c.

Pork—Mess, per bbl. $22 to $23; prime mess, $17 to $18; extra prime, $15 50 to $16 50.

Bacon—Cumberland cut, 10½c. to 11c.; roll, 12½c. to 13½c.

Hams—12½c.; covered, 13c. to 13½c.

Shoulders—Smoked, 10c. to 10½c.

Lard—In kegs, 13½c. to 14c.

Eggs—Packed, 16c. to 17c.

Beef Hams—13c.

Tallow—7c. to 8c.

Hides and Skins.—Hides, green, rough, per lb. 5½c. to 6c.; green inspected, 7c.; cured and inspected, 7½c to 8½c. Calfskins, green, 10c.; cured, 12c.; dry, 18c. to 20c.

Wool—Per lb. 26c. to 27c.

Hops—Inferior, per lb. 10c. to 15c.; medium per lb. 15c. to 20c.; good per lb. 20c. to 30c.

CATTLE MARKET—There has been a complete stagnation in the cattle market during the past week, the hot weather and strawberry season having lessened the demand for meat. The prices are considerably lower, having declined 1½c. per lb. since our last report. We quote per 100lbs. dressed weight:—1st class cattle, $6; 2nd do. $5; 3rd do. $4. *Sheep* have been in plentiful supply, but have not been in good demand. It was difficult to effect sales. We quote:—1st class $4; 2nd do. $3; 3rd do. $2 50. *Lambs* have been scarce and in demand. We quote: 1st class $2 50 each; 2nd do $2; 3rd do $1 50. *Calves* have been more plentiful and are lower. We quote: 1st class $6 each; 2nd do $4; 3rd do $3.

Montreal Markets, July 13.—*Flour*, superior extra, $7 50; extra, $7; fancy, $6 90; Welland Canal superfine, $6 60 to $6 70, superfine No. 1, Canada wheat, $6 60 to $7; superfine No. 1, Western wheat, $6 25 to $6 60; No. 2 do, $6 20 to $6 30; bag flour, $3 40 to $3 50. *Wheat*—Canada Fall, $1 60; Canada Spring, $1 55 to $1 56; Western, $1 50 to $1 52]. *Oats*—Per 32 lbs. 42c to 43c. *Barley*—Per 48 lbs. 90c to 95c. *Butter*—Dairy, 15c to 17c; store packed, 13c to 16½c. *Cheese*—9c to 10c. *Ashes*—Pots, $5 65; pearls, $5 45. *Pork*—Mess, $24; Prime Mess, $16 25; Prime, $15 25. *Peas*—$1 5 to $1 10. *Rye Flour*—$5 75 to $6.

Milwaukee Markets.—July 11, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 5,000 bushels; shipments 37,000 bus. No. 1 wheat quiet at $1 86; No. 2 do. at $1 78. Flour unchanged. Pork firm at $26 25. Freight nominal.

Chicago Markets, July 11, noon.—William Young & Co.'s report.—*Wheat*—Receipts, 3,000 bushels; shipments, 18,000 bushels. No. 2 wheat inactive at $1 80. Corn easy at 93c; receipts 181,000 bush.; shipments, 337,000 bush. Pork firm at $28 50.

New York Produce Market.—July 11.—*Flour*—Dull and drooping; receipts 3,700 bbls; sales 7,800 brls at $5 75 to $7 20 for super. state and Western; $8 00 to $8 70 for common to choice extra State; $8 75 to $10 for common to choice extra Western.—*Rye Flour*—Steady at $7 75 to $9 80. *Wheat*—Dull; receipts, 85,000 bush. *Rye*—Quiet; sales 4,000 bush. Western at $1 86; Canada at $1 87.

Contents of this Number.

	Page
THE FIELD:	
Blank Places in the Turnip Field	209
The Drainage of Land	209
Broadcast and Drill-sowing	210
Cultivation of the Beet for Sugar	210
Salt as a Manure	210
Root Crops and their Management	211
Weeding Potatoes with Sheep	211
Burdock	211
A Somersetshire Stile—with cuts	211
Plaster for the Hop Aphis	211
On Drying Grain in Sheaves	211
STOCK DEPARTMENT:	
A Sensible Proposition	212
Nutritive Value of Food for Cattle	212
The Descendants of Captain Cook's Pig	212
Summer Shelter for Stock	212
Live and Dead Weight in Sheep	212
Free Martins	212
VETERINARY DEPARTMENT:	
Swelled Legs	212
Veterinary Queries	213
THE DAIRY:	
Milk and Dairies	213
Pigs Sucking Cows	213
POULTRY YARD:	
Poultry Culture	213
Poultry Disease	214
Means of Knowing if Eggs are Fresh	214
Joint-Stock Nests	214
ENTOMOLOGY:	
Burying Beetles—(with cut)	214
Dr. Hall's Curculio Catcher	215
Insect Specimens	215
Cockchafers	215
Grasshopper Pest	215
Scarlet Spiders	215
Does Frost Kill Larvæ?	215
The Plum Curculio (with cuts)	216
CORRESPONDENCE:	
Farmers' Clubs	216
Bath and West of England Society's Show	216
"Dry Earth System," &c.	217
EDITORIAL:	
The Weather and Crops	217
British versus American Farming	217
The Wool Market	218
Notices of Books—Guide to the Study of Insects; The Butterflies of North America; Transactions of the American Entomological Society	218
Discontinuance of the "Fruit Culturist"	218
AGRICULTURAL INTELLIGENCE:	
Traction Engines	218
Brief Items—Texas Cattle; Beet Root Sugar; Goderich Sale, Ohio State Fair; Fall Shows; Fires; Salmon; Tree Planting; Prevention Better Than Cure; Peat; Exports of Beet Root Sugar from France	219
Western Wool	219
THE APIARY:	
The Bee Moth	219
How Do Bees Track Honey?	219
Bees in Cities	219
HORTICULTURE:	
Garden Culture of Native Wild Flowers, (with illustration)	220
Coal Oil as an Insect Extirpator	221
Timely Hints to Fruit Growers	221
Summer Meeting of the Ontario Fruit Growers' Association	221
Hamilton Horticultural Show	222
Western New York Horticultural Show	223
Caterpillars on Gooseberry Bushes	223
THE HOUSEHOLD:	
How to Make Spruce Beer	223
To Cure Meat	223
Doing It Mild	223
As Our Mothers Do	223
Hospitality	223

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for **$1 30** each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for ..... NINE DOLLARS.
TWENTY COPIES for ..... SIXTEEN DOLLARS.
FORTY COPIES for ..... THIRTY DOLLARS.
ONE HUNDRED COPIES for ..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

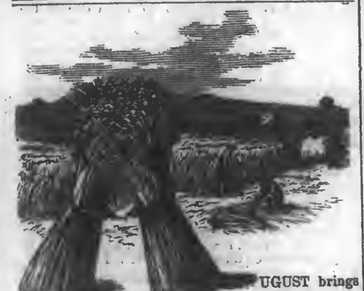
Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

THE CANADA FARMER.

VOL. V. No. 15. TORONTO, CANADA, AUGUST 1, 1868. POSTAGE FREE.

The Month.



AUGUST brings wane to the summer, and abatement to the heat. These are welcome and pleasant reflections always as July draws to a close, but they are especially so this year. The July of 1868 will be long remembered as unusually hot. For the first fortnight in the month, the thermometer hovered among the nineties in the shade, while drought accompanied the heat, and heightened its apparent intensity. No summer for thirty years past has equalled the present for great and long-continued heat. There have been single days as hot as any during the past month in former years, perhaps hotter, but a whole fortnight of such incessant heat is unprecedented. The mean temperature for the first half of the month, as noted at the Toronto Observatory, was 77°3', upwards of seven degrees higher than the usual average, as given in our July article on "THE MONTH." The highest point of heat reached at the Observatory was 93°4', but as all local influences are carefully avoided there, so as to get the actual condition of the atmosphere, it is not surprising that on the shady side of city streets, with confined air, and radiation of the sun's rays from contiguous buildings, the mercury should have risen several degrees higher. Under these less favourable circumstances there have been days when the thermometer marked from 95 to 100 degrees, and even higher. This unusual heat has prevailed not only throughout the Dominion of Canada, but all over the continent, not even excepting many of the cities on the Atlantic coast, where sea-breezes generally alleviate the miseries of the dog-days. As a consequence, the papers have chronicled a great number of deaths from sun-stroke, while many more have doubtless been caused in some way or other by the great heat. These cases have mainly occurred in cities, and a large proportion of the victims have either been persons of intemperate habits, or have brought on the fatal result by thoughtless exposure, excessive exertion, or too free use of iced drinks. People cannot be too careful during such a condition of the weather. Extreme heat can no more be trifled with than extreme cold. We have met with scarce any instances of sun-stroke or other casualties among the farming community, although it must have been a very trying time, coming, as it has done, at the season of haymaking. Farmers being in general persons of temperate habits, and to a considerable extent accustomed to work in the heat, may account for this circumstance. July has told not only upon human health and life, but upon the crops. Up to the beginning of last month, the season was indeed a model one, giving, as we remarked in our issue of July 1, no conceivable ground of complaint even to chronic grumblers. But the scene has vastly changed within one short month. Wide, and we fear irreparable, damage has been done by the heat and drought.

Leaving now these features that have been special and unusual, we proceed to note the general characteristics and duties of the present month, and as we have been wont to do so far through the year, we transcribe from the "Year Book of British North America" the mean temperatures for August at leading points in the Dominion of Canada.

Stratford	59° 16'
Hamilton	62° 57'
Barrie	58° 31'
Toronto	60° 80'
Belleville	61° 78'
Montreal	60° 18'
Quebec	64° 60'
St. John, N.B.	59° 16'
Halifax	62° 00'

From the above it appears that Hamilton has an average of nearly two degrees greater heat than Toronto the present month, while Quebec is about four degrees, and Halifax between one and two degrees hotter than either Toronto or Montreal.

August work on the farm may be summed up in two words: "Harvest continued." By the beginning of this month, indeed, where the weather has been favourable, and farmers have been duly prompt and pushing, the greater portion of the hay and grain crops will have been secured. Oats will yet be to cut, and this ought to be done before the grain ripens, in order to improve the quality of the straw and prevent the grain from shelling out. When harvest operations are fairly concluded, the tools should be well housed and taken care of, especially the reaping machines, which are costly, and from their construction must suffer greatly from exposure to wind and weather. It is painful to observe what carelessness and neglect are practised in this direction. Farmers who have had a hard struggle to pay for expensive implements, bestow no thought or attention upon them, leaving them perhaps in the open fields, or giving them some partial shelter which is little better than none. This ought not to be. Tools and implements well housed not only last longer, but do better and easier work while they last than those which are subjected to neglect. Root crops will now be so far advanced as to need no more hoeing. Even yet vacant places in the turnip field may be filled by sowing white turnips. They will of course attain no great size, but half a turnip, like half a loaf, is better than none. Those who have not lost faith in fall wheat will improve every opportunity for preparing land intended for that crop. A narrow field along the edge of the woods is the best locality that can be chosen, as there the wheat is less likely to be winter-killed. It is a thousand pities every farm in Canada has not its belts and strips of trees to afford a degree of protection. The country is too bare. Drought in summer, and alternations of freezing and thawing in winter, are the fruits of wholesale clearance. The best seed wheat should be secured, and care taken to get it thoroughly clean. Why should the land be stocked with chess and foul weeds, when a little care and precaution will prevent it? Now is the time that most weeds ripen and scatter their seeds; therefore to destroy them at this period will prevent future increase. It must be *destruction*, however. To cut them up, is often but a half-way measure, from their being left to lie and perfect their seeds upon the ground. To make heaps of them and burn them is an excellent plan. This month is a good time, if there is leisure for it, to underdrain low-lying lands, to dig swamp muck, and expose it to dry, or to perform any operations upon parts of the farm that are wet in the spring and fall. During this month the sheep gad-fly, which causes the trouble in flocks known as grub in the head, hovers about the heads of its victims in order to deposit its eggs about the nostrils. Smearing the sheep's noses with tar, and giving them access to ploughed ground, are recommended as preventives. The garden and orchard will now begin to yield their increase, and the pleasant task of gathering and storing the fruits of the season will commence. Insect troublers may be checked in their depredations by keeping a sharp look-out for them, especially the borer, which lays its eggs about this time. The grub quickly hatches and makes its way into the tree. A wire probe is the thing with which to hunt and destroy this pest. A coating of soft soap at the base of the tree is said to be a safeguard against its depredations. Except in localities where buckwheat abounds, honey-gathering will be pretty much over this month. There is yet opportunity to do something in the way of Italianizing, equalizing, and regulating stocks; operations which must be attended to, if at all, during the summer time. Bees cannot be handled to much advantage when chilly weather comes on, and after the working season is over it is well to disturb them as little as possible.

Stock of all kinds, let it be remembered, will need to be well looked after at this season of scanty pastures and failing springs. It is always poor economy to allow animals to fall off in condition.

The Field.

Summer Fallowing and Green Manuring.

It was a theory in farming, as formerly practised, that after a certain amount of cropping, land required rest, very much as the man who tilled the land, after a period of labour, found it needful to rest. Experience proved that summer fallowing had the effect of restoring fertility to the soil; but it may be doubted if many of our forefathers had any correct idea of the principles in nature according to which this result was obtained. Some vague notion about the land being exhausted, and needing rest, was well-nigh all they knew in reference to the matter. But the scientific explanation of reinvigoration by fallowing is, that in consequence of the exposure of the soil to sun and air, elements of fertility are absorbed, and chemical conditions obtained, which restore productiveness. Land is never exhausted by growing crops upon it; the exhaustion comes of removing the crops without giving back to the soil what has been taken out of it in the course of their growth. If the plant food taken out of the soil by a particular crop were faithfully returned, there would be no exhaustion, and no need of rest. Indeed under such treatment land would increase in fertility, since, to a certain extent, tillage is manure, and a constant stirring of the soil is highly favourable to productiveness. So, also, if the crop were suffered to remain on the land, and there undergo the process of natural decay, not only would there be no impoverishment of the soil, but it would increase in fertility, because growing plants obtain a portion of their nutriment from the air. Again, if, instead of its being left to decay, the crop is fed to animals who consume it on the land, their manure will so far enrich the soil as to prevent deterioration, and maintain the average standard of fertility; while by feeding these animals meal, grain, or oil-cake, in addition to such crop, the land is actually enriched.

Among intelligent and scientific farmers, the practice of green manuring has quite superseded the old plan of summer fallowing. This proceeding consists in the growth of green crops for the express purpose of the vegetable matter thus produced being ploughed under as manure. The most beneficial results have been found to follow this method, and it is every way desirable that it should be more extensively adopted. In explanation of the benefits thus obtained, it is only necessary to refer to a fact mentioned a few sentences back, viz: that plants derive a portion of their subsistence from the air. If the soil were the only source of plant food, the growth of a crop could not add any new material to the land, or augment its fertility. The processes of growth might act beneficially on the soil, as they doubtless do, but nothing would be given to the land except what had been derived from it. But it has been abundantly proved that growing crops absorb a large amount of vegetable matter from the atmosphere, and when this is incorporated with the soil, there must be proportionate enrichment. Nor is this increase of nutriment the only beneficial result arising from the use of green manures. If this were the case, it might be a question whether a like quantity of fertilizing material might not be purchased, and applied to the soil at the same or less cost. There is, however, the mechanical action of green manures to be taken into account, as well as their chemical action. In the case of strong, clay soils, this mechanical action is especially valuable. Such soils, though highly productive, are so dense and compact in their texture, that they are hard to work, and their stores of fertility may be said to be locked up, and to a great extent unavailable. After thorough preparation for a crop, they soon harden again, especially when subject to the influence of dry, hot weather. Ploughing under green manures renders a stiff soil porous and friable, a state of things very encouraging to the growth of roots, enabling them to penetrate the soil more freely in search of nutriment. Sandy and loamy soils are also benefited, especially by their becoming more capable of retaining moisture, which is held by the vegetable tissues thus added to the land. Manure is also more easily retained in such light soils, as the result of this process. Even blowing sands have by this means been so improved, that in process of time superior farms have been formed on tracts of land previously considered barren and worthless.

A crop, to be suitable for green manure, must be of rapid growth, and a greedy feeder on the atmosphere. Mustard, buckwheat and lupin are chiefly used in Great Britain for this purpose. In this country, clover, buckwheat and Indian corn are the best green manures. The last mentioned crop cannot be allowed much growth before ploughing under, or it will become too tall for burial with the plough. Buckwheat is a most excellent plant for the purpose under consideration. It grows very fast, feeds largely on the atmosphere, and is fit to plough under in four or five weeks from the time it is put into the ground. There is no better preparation for fall wheat than ploughing under a luxuriant growth of this plant or of red clover.

The age of the crop at the time it is ploughed in is a matter of much importance. Just before blooming, or when in full bloom, are considered the best periods, and authorities differ as to whether before or while blooming is the preferable time. By all means, however, the plant must not be allowed to ripen and perfect its seed. If this is permitted, the soil is robbed greatly, and much of the fertilizing material consolidated into woody fibre, in which condition it is not so nutritious, or so readily available for plant food.

Another beneficial effect of green manuring, which has led to its being much encouraged in certain localities, is its destructiveness to the wire-worm. This insect, which is one of the wheat farmer's greatest pests, is greatly checked in its ravages by the practice we are commending, and it would be well for those who are troubled with this marauder to try a dose of green buckwheat.

Haying.

BY HENRY WARD BEECHER.

Alas for the poetry of farming! All the songs of milk-maids must be now listened for in the old English poets. The whetting of the mower's scythe is almost over—quite over—on my farm! Instead of that, one hears the sharp rattle of the mower, and sees the driving man quite at his ease riding round and round the meadow, for all the world as if he were out airing! Whereas, heretofore, two acres would be counted a large day's work, now ten and twelve are easily accomplished!

Nor is the contrast less remarkable in all the after-work. When I was a boy I was placed in line, with all the men that could be mustered, to shake out the hay with forks; and after a few hours all hands were called to go over the ground and turn it. To do this rapidly, and yet so that the bottom side shall really come on the top, was no small knack. Now, a tedder, with one man riding, will literally do the work of ten men, and do it far better than the most expert can. Have you ever seen a tedder? I have now a perfect one. The grass rolls up behind it and foams, I was going to say, like water behind the wheels of a steamer. The grass leaps up and whirls as if it were amazingly tickled with such dealings. The result is, that unless the grass is very heavy, and the weather very bad, you may cut your hay in the morning and get it into your barn before night, in far better condition than it used to be when it required never less than two, and generally a part of three days to cure it.

But, I have forgotten the horse-rake. Instead of the old-fashioned, long-handled rake, and the five or six men, pulling and hauling to get the grass into winnows, that same fellow, with that same horse, rides his luxurious rake, and in the fifth part of the time formerly required, puts it in equally good shape. Indeed, haying, if it has lost its poetry, has also lost its drudgery. A man can now manage a hundred acres of grass easier than he formerly could twenty. The only thing that remains to be made easy is pitching on and off the load. It is true that horse-forks have been invented, but I have never seen any that did their work well; and in my barn, at any rate, the old work of pitching and mowing remains; and if you wish to know what fun is, get on to the mow, under the slate roof of my barn, on a hot day, and let Tim pitch off hay, as he will if I give him the wink. You will have to step lively, and even then, you will often be seen emerging from heaps of hay thrown over you, like a rat from a bunch of oakum. And then it is so pleasant, when a man is all sweat, to have his shirt filled with hay seed, each particular particle of which makes believe that it is a flea, and wiggles and tickles upon every square inch of your skin, until you are half desperate!

It is the 2nd of July, and my grass is all cut, and the last load is rolling into the barn while I write. How sweet it smells! How jolly the children are that have been mounted on top of the load; and their little scarlet jackets peep out from their nests while Tim stands guard and nurse. A child that has not ridden up from the meadow to the barn on a load of hay has yet to learn one of the luxuries of exultant childhood! What care they for jolts, when the whole load is a vast multiplex spring? The more the wagon "jounces" the better they like it! Then come the bars, leading into the lane with maple trees on each side. The limbs reach over, and the green leaves kiss the children over and over again. So would I, if I were a green leaf, and not consider myself so green after all! And so the load rolls slowly up the hill. There is no such thing as momentum in an ox. He is always at the dead pull and at the very hardest. But the children like it! The slower, the longer the ride! Let them take all the comfort they can. By and by they will be grown, and own fine carriages, and roll in style through the streets. But there is many a fair face that rides in a silk-lined coach, with a sad heart, and would go back if she could, oh how gladly, to the joyous ride on a load of hay!—*N. Y. Ledger.*

The Spruce for Hedges.

To the Editor of The Canada Farmer:

Sir,—Many of your correspondents' letters are so interesting that I wish to furnish my quota, especially about hedges.

I quite agree with Mr. J. Nicholson about trimming hedges, viz., that the triangular form should be always observed. A hedge trained in this way must be thick at the bottom, the rule being—one foot high, one foot at the base, and so on to six feet.

If this principle is a correct one, the question then comes, what form of tree will yield most easily to such conditions? The thorn is always trying to get toppy, and consequently thin at the bottom; in fact most thorn hedges, if turned topsy turvy, would make good hedges. I also find all classes of domestic animals feed greedily on the thorn shoots; another objection I make is that early in the year the hedge looks thin, until the leaves come out. I have, therefore, abandoned thorn hedges to adopt the Spruce Fir. This tree, if planted two feet apart, comes up to my idea of what a good hedge ought to be; it readily conforms to the shape required, viz., the triangular; it looks tremendously strong; no animal eats it, and it is handsomer in winter than in summer, besides growing quicker. I know of no insect which destroys the Spruce Fir. I have about twenty acres of Fir hedge planted on my farm; I clip them with shears as there is little or no trouble with them. The thorn, on the contrary, is always trying to bother us, and it is the work of a careful man or the master himself to keep them in bounds.

Spruce Firs are delivered on my farm, two feet high, at five cents each. I always prefer those grown in a field to those brought out of a wood. Fir hedges are used on the railways in Switzerland as thorns are used in England.

W. RHODES.

Sillery, Quebec, 20th June, 1868.

New and Easy Method of making Maple Sugar.

A correspondent of the *Mark Lane Express* referring to the principle of pneumatic evaporation applied by the Northern Tartars in a very simple and efficient way, during the winter months, in the preservation of milk, finds in it a novel and short-hand method whereby Canadians may make maple sugar. The Tartars place milk in shallow pans, and expose it to the cold winds during frost. In a short time, a dry, white, crispy substance is found on the surface, which is carefully scraped off and put into bottles. This process is repeated until all the watery portion of the milk is evaporated, and a sweet white substance, which is essentially *sugar of milk*, is thus obtained, which may be kept any length of time, in any climate, if kept dry. "This plan" says the writer, "though not practicable here, might be applied to the evaporation of the sap of the maple in Canada, and would produce excellent sugar at a trifling cost." Notwithstanding the assured confidence with which the above prescription is given, there being no "if," "but," or "perhaps" to qualify it, we doubt if anybody in Canada will have enough faith to try it. How very easy it is to theorize! Did ever anybody see "a dry, white, crispy substance" floating on the top of a trough-full of maple sap, exposed to "pneumatic evaporation?" Without consulting a manual or professor of chemistry for the scientific explanation of the difference between the two liquids, it is quite enough to know that sugar scales were never found formed on the surface of maple sap, and that the only method of obtaining the sugar is to evaporate the sap by applying artificial heat.

The Cultivation of Land.

Mr. Jackson, M.P. for North Derbyshire, attended the anniversary dinner of the Norton Farmers' Club and District Agricultural Society, held at Staveley, and gave an amusing account of his experiences in agriculture. The honorable member, on the subject of the draining of land, observed that he once had a field of thirty acres, and it grew nothing else but large camomile flowers—that was, large yellow daisies. They were so thick and so hard that a cannon ball if fired into them would have rebounded. Well, at last he commenced draining, and he drained four and five feet deep, the distance between the rows being eight feet. Whilst the field was being drained the season overtook him, and although he ploughed as fast as he drained, he was unable to sow more than half of the thirty acres. He was speaking what was strictly true when he told them that the money he received from the first crop paid the cost of the drainage of the entire field; therefore, he was not a loser by it, but a great gainer, because during subsequent years he reaped the beneficial effect of the land being drained. Some time ago he was fortunate enough to produce forty-two tons of carrots from one acre. He trenched the soil about three feet deep, and at the bottom of the trench put a quantity of good stable manure mixed with guano. He then transplanted his carrots, and for a month they hung down their heads as if there was no life in them. At last they began to smell good stuff below, and the result was they went down with a vengeance. After some time he was able to draw carrots as long as his arm, and as thick as the thickest part of it. The next year he had a similar crop of carrots, followed by a splendid crop of potatoes, and then by a good oat and clover crop—all without any additional manure. If they only brought capital and science into play, it was almost impossible to over-estimate what could be done with land; and he did not know anything that would pay a man better than to purchase land for agricultural purposes. Mr. Jackson then proceeded to recommend farmers not to pay so much attention as they were doing to the production of cereals, as he said there were other countries in which they could be grown where land was cheaper and the sun stronger; but other countries could not produce such beef and mutton as England could, and he advised them to make the breeding of beasts and sheep their principal study. The hon. member recommended increased attention being paid to the rearing of poultry, as he said £2,000,000 were spent by this country every year for eggs and poultry obtained from the Continent, when we ourselves might produce all that the country required.—*Farmer* (Scottish).

The Difference between Ploughing and Cultivation.

Mr. Mechi says deep ploughing may be ruinous where deep cultivation would be beneficial. This apparent paradox may be easily explained:—Where the land, just below the regular ploughed line, is undrained, panned down, and consequently has never been subjected to the ameliorating influence of aeration by exposure, it is, in too many instances, absolutely poisonous to young plants. I know of so many cases where, by at once ploughing up and bringing to the surface four or five inches of raw subsoil, the land has been rendered much less productive for several years, that I warn my amateur farming friends against committing such a costly error. The young growing plants cannot thrive, in the beginning of their growth, in such unprepared mass, and, consequently, are enfeebled before their roots reach the good buried top soil. That able agriculturist, the late Mr. Smith, of Deanston, wisely recommended that the subsoil should be allowed to dry a little after being drained before even subsoiling was attempted; and that kind and enlightened man, the Rev. Samuel Smith, of Leis Weeden, ploughed his top soil together, and then worked his manure into the uncovered subsoil, leaving it bare for a time, and then re-covering it with the surface soil. When I deeply cultivate, I plough the top soil, and follow in the same track with another plough (minus its breast or mould board): the next turn of the first plough then covers up this raw subsoil. In this operation a portion of the subsoil gets gradually mixed with the surface soil, and thus my staple is gradually increased with benefit to the crops. My experience teaches me that from ten to twenty years will hardly suffice to bring into a suitable condition some of our tenacious plastic clay subsoils. It is on these grounds that I should, in the case of using steam power, commend the use of the grubbers, or cultivators, that stir the soil deeply without bringing much of it to the surface, and that it should be a gradual deepening instead of tearing up at once great masses of the subsoil. I have never seen any implement so suited to the purpose as that which steam ploughed a portion of my clover in 1856, in the presence of a large company. That deep cultivation showed its good effect for several years. Fowler's plough was supplemented by Cotgreave's sub-soil plough. They were attached, so that as they moved along one furrow slice laid under the other, the top soil being laid on the top of the other; and yet, strange to say, I never have seen this used since. The fact is that this double ploughing takes much power, and cannot be hurried over, but it is the proper and most profitable mode. Many farmers have been ruined by rashly burying their best soil, and covering it with several inches of raw subsoil. There may be some subsoils sufficiently wholesome to permit of their being suddenly brought to the surface. In many cases ploughing is objectionable, leaving long unfilled spaces obnoxious to the roots of plants. The cultivator has many advantages.

The Peck per Acre.

To the Editor of the Mark Lane Express.

Sir,—The peck of wheat per acre sown the second week in November looked like a fallow all winter, but is now, after hoeing, branching abundantly, and my labourers predict that it will be as good or better than the rest of the field sown thickly with one bushel per acre. Every year I sow half an acre with half a peck of wheat, in the midst of a thicker sown crop, putting it in the same day and under the same circumstances in the various fields, as they come in rotation. By this means I arrive at safe conclusions, and I would strongly recommend my agricultural friends to follow my example, by thus experimenting on a small and uninjurious scale. It would abolish many prejudices, and they are bound for their own interests to ascertain the most profitable quantity of seed. My four years' trials have resulted in 58, 57, 36, 36 bushels of wheat per acre, the two first good wheat years, the two latter unfavourable. I still continue to drill 4 pecks of wheat, 6 pecks of barley, 8 pecks of oats, as my general sowing—a trifle more on the light land; but I am getting more and more convinced that, with high, clean farming, and the drill, we may, in Essex, reduce our wheat to 2 pecks. On light lands we need not fear wireworm, if we use 6 bushels of salt per acre about February, or early in March. By having our drill-cups and wheels arranged like those of Mr. Hallett, at Brighton, we can put in very small quantities of seed. It does amaze me to read that 7 bushels per acre of oats are still sown in Scotland, and that this sowers pride themselves upon putting in only 5½ bushels! I presume that this is done broadcast, and the mea sure a Scotch acre. I am satisfied, however, that such a system can never result in such crops as we generally grow on this farm—say from 9 to 13 quarters of black oats per English acre.—I am, sir, yours,

April, 1868. J. J. Mechi.

Good Farming, High Farming.

Good farming is sometimes high farming, and sometimes not. Ploughing under a crop of clover for wheat is frequently good farming, but it is anything but high farming. Summer-fallowing is often the best and cheapest way of cleaning and enriching land, and in such case is good farming, but it is never high farming. High farming would summer-fallow the land, and have a heavy crop growing at the same time.

The market gardens around New York afford excellent examples of high farming. Read Henderson's interesting book on "Gardening for Profit," and you will get an idea of how much produce can be raised on an acre of land. They employ a working capital of $300 an acre; underdrain thoroughly; use from 50 to 100 tons of manure on each acre every year; have two, three, and four crops in succession during the season on the same land; never let a weed show itself; pay from $100 to $300 an acre rent and taxes, and make a handsome profit besides. This is high farming. They have to pay an enormous price for the land, and they *must* farm high or not farm at all. They could not afford to let their land lie idle a year in order that they might summer fallow, or plough under a crop of clover. Where land is worth only $50 an acre, we can afford to adopt a slower method of enriching it than when it is worth $500, or even $200 an acre.

I can afford to spend $30 an acre in underdraining my farm in Western New York, but it is very questionable whether $30 an acre can be profitably spent in draining a farm in a section of Iowa, where good, dry land could be bought for $10 an acre. Where corn is worth $1.25 a bushel, it may pay to expend 25 cents a bushel in grinding and cooking it for the hogs, but where corn is worth only 35 or 40 cents a bushel, it would hardly pay to expend 25 cents for the purpose.—*J. Harris, in American Agriculturist.*

Ashes for Grass.—Mr. David Goodwin, of Arnprior, sends us a fine specimen of Timothy, with the following note:—"Enclosed I send you a stalk of Timothy, over six feet in length, grown on my farm, Township of McNab, County of Renfrew. It shows the great value of wood ashes as manure, as it grew on the border of a meadow where the fence was burned last spring, and the fire ran among the old grass."

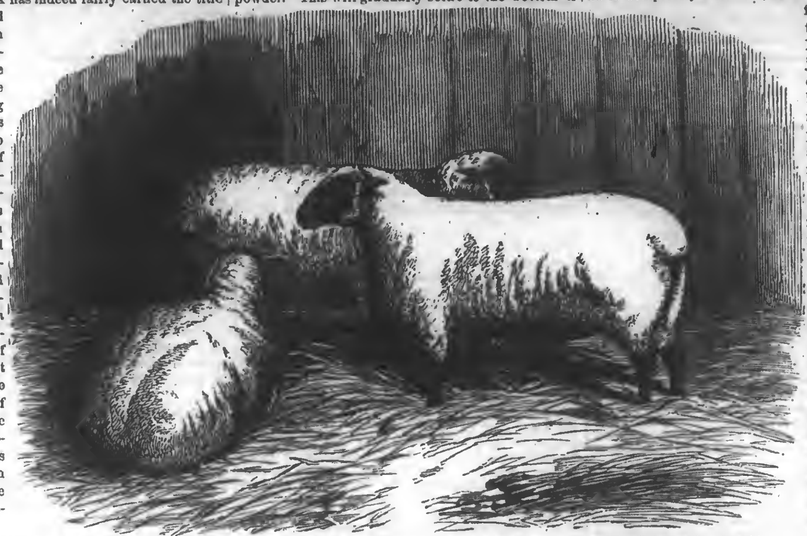
Salting Wheat.—A correspondent in the *Colonial Farmer* recommends the addition of salt to wheat as soon as it is threshed, adding half a pound of salt to a bushel of wheat and mixing them in the bins. He says that wheat so treated is better preserved than by the ordinary method; that it does not lose so much in weight or volume, that it makes more and better flour; and that when used for seed it is not liable to be attacked by weevil (qy. midge?) The correspondent referred to has tested the plan, he tells us, for eighteen years with unvarying results.

Haying in "Catching Weather."—Last year the weather was characterized as "catching"—almost any body can make hay when the sun shines, but the problem may be presented to make hay when it does not shine. With the mowing machine, tedder, horse rakes, and hay taps, an active man of fair judgment may succeed, with a mere modicum of the direct heat of the sun. The principle is continuous drying. The lack of sunshine must be made up by stirring, if the atmosphere is a drying one, and here a good tedder will be found most useful. Long exposure of clover to the hot sun is ruinous; the heads and leaves will fall off, and these constitute the best part. Grass containing clover should be dried rapidly, until thoroughly wilted, and while still green and hot, cocked up. If it has a little sunshine when first cut, it will cure in ordinary catching weather in the cocks, covered with hay caps, provided it can be opened out and shaken up now and then. The hay will be surprisingly green and good, and it will not require much labor to make hay in this way.—*American Agriculturist.*

Stock Department.

Hampshire Down Wethers.

The accompanying illustration, taken from the *Farmers' Magazine*, represents a fine group of Hampshire Down wethers, the property of Mr. W. D. Canning, of Elston, Devizes, England. Some account of this valuable breed of sheep will be found in our last volume, page 37, with an excellent engraving of the animal that took the prize in this class at the Provincial Exhibition of the preceding year. In reference to the subject of our present illustration, the June number of the *Farmers' Magazine* says:—"These wethers were at all points one of the best pens of sheep exhibited at the last Smithfield Club Meeting. Mr. Canning's flock has indeed fairly earned the title of "*Improved*," and his sort has been deservedly appreciated alike in the market and the show-ring. During the last few years the Elston sheep have taken ten of the Royal Agricultural Society's premiums, six of which were first, with ten from the Smithfield Club, in equal proportions of first and second. Mr. Canning was also a winner at the Salisbury Meeting of the Bath and West of England, the only occasion of his entering the ranks of that Society, while he has of course taken from time to time any number of local premiums.



This deservedly famous flock of Improved Hampshire Downs will be sold at Elston in August."

The Chemistry of Respiration

Having already considered the mechanism of breathing, we come now to examine the chemistry of the process. By this phrase is meant the changes in the air and blood that result from the contact of the two in the lungs. The air we breathe is composed of two principal elements, oxygen and nitrogen, in the proportion of one-fifth of the former to four-fifths of the latter. There is besides a very small portion of carbonic acid present in the atmosphere; but the ordinary proportion does not amount to more than four-parts of this gas in ten thousand parts of air. A varying quantity of watery vapour is also dissolved and mixed with the air. Such is the composition of air as it is inspired or drawn into the lungs; but the breath which an animal expels from its lungs is found deficent in the proportion of oxygen, and contains in its place a quantity of carbonic acid. The amount of this gas given off in each act of breathing is indeed very considerable. Taking the human lung as an example, it may be stated as a general average that, under ordinary circumstances, the quantity of carbonic acid exhaled into the air breathed by a healthy adult man amounts to 1345 cubic inches, or about 636 grains, in an hour. According to this estimate, the weight of *carbon* excreted from the lungs is about 173 grains per hour, or eight ounces in the course of twenty-four hours. The quantity of carbonic acid exhaled from the lungs of larger animals, such as the ox or horse, is considerably greater, and even in the case of smaller animals, as sheep, which are often collected together in large numbers, it will readily be understood that the air about them must soon become loaded with carbonic acid unless it is changed by a free ventilation.

The presence of carbonic acid in the expired air is easily shown by a simple experiment. If we breathe through a tube into lime water, that fluid very speedily becomes charged with carbonate of lime, and assumes a milky appearance. The cause of the change is that the carbonic acid from the lungs unites with the lime dissolved in the water, forming carbonate of lime, which being very sparingly soluble, becomes diffused through the liquid as a fine powder. This will gradually settle to the bottom if the water is allowed to stand. Besides the carbonic acid expelled from the lungs, a considerable amount of watery vapor is exhaled in breathing.

The foregoing are the chief effects produced on the air by respiration. We cannot here very minutely explain the changes which the blood undergoes, but will merely state the principal alterations to be observed in this fluid during the same process. The blood, as already explained in the previous article, when it returns to the heart after completing the circuit of the body, is altered in colour, being dark instead of bright red. This change of colour is due to the presence of carbonic acid distributed or dissolved in it. As the blood permeates the minute vessels of the lungs, every drop of it is exposed to the air, and here it parts with its carbonic acid, and absorbs instead the oxygen of the air. This restores the bright color of arterial blood, and the change renders the fluid again fit to circulate through the body. Nitrogen is also absorbed and given off, but of this it is not necessary for our present purpose to take any account. The fresh portion of oxygen imbibed is probably in part immediately combined with some of the constituents of the blood, but most of it is merely dissolved, and carried in the circulation to various parts of the body, where in the ultimate capillaries it unites with carbon thrown off from the tissues in the constant process of change going on, thus forming carbonic acid; for this gas, it is scarcely necessary to inform the reader, is a chemical compound, in definite proportions, of oxygen and carbon. The carbonic acid thus produced is carried in a state of solution by the blood to the right side of the heart, and thence into the lungs, to be exhaled, and replaced by a fresh portion of oxygen.

It is absolutely necessary that the venous blood charged with carbonic acid should undergo this change before it passes again through the body. Without this chemical alteration it is a fatal poison to the system, and nature indeed resists its circulation through the body. For if pure air is not admitted into the lungs, the dark blood will scarcely pass on its course; the lungs, therefore, are gorged with blood, the left side of the heart becomes empty, and the right side distended and overfilled; what little blood returns from the lungs into the left side is venous, and this being sent to the brain, augments the mischief, till both the acts of breathing and the beating of the heart very soon cease altogether. If air is completely excluded, as in drowning, a very few minutes serve to extinguish life. In the human subject the contraction of the heart ceases in less than five minutes after complete submersion, and persons are rarely saved if they have been under water more than four minutes. The instances in which recovery has taken place after a longer immersion are probably to be explained by the occurrence of fainting at the moment of the accident; for, with the circulation thus enfeebled, the deprivation of air may be endured much longer than it can while the blood still circulates quickly and accumulates carbonic acid.

It is obvious, then, that carbonic acid, mixed in any but the smallest proportion with the air we breathe, is highly poisonous. Its presence in even small quantities is deleterious, for it is only when the air is perfectly pure that the proper exchange of gases will take place. If carbonic acid already exist in the air, a much smaller amount is given off by the lungs, so that the mischief very rapidly assumes threatening and dangerous magnitude. We learn also, from the manner in which the ordinary gaseous elements of the air are absorbed by the blood, with what facility any impurities can by the same means be introduced into the vital fluid, and work out according to their nature, slowly or quickly, but most surely, their injurious and often fatal effects.

From these considerations the necessity of thorough and efficient ventilation becomes obvious. It is not necessary that the air should be vitiated to the point of suffocation to become a source of disease. The breathing of a single animal soon renders an apartment impure, and unless fresh oxygen—that is, fresh air—is supplied, and the carbonic acid and other impurities dissipated, the neccessary change in the blood cannot be duly effected, morbid matter is introduced into the system, and disease in some form, if not a speedy extinction of life, will assuredly follow. There is indeed no more certain method of infecting poison into the blood than by the air we breathe, which is none the less potent because impalpable and unseen.

The Summer Management of Stock.

It is a difficult matter on a considerable holding to keep all varieties of stock going on satisfactorily, to ensure their getting food suitable for them in quantity, and of a quality which will prove fairly remunerative; to prevent waste; to ward off causes of accident or disease. Properly to arrange all this, requires some generalship and some experience. Young farmers with a fair command of stock often fall into the serious error of getting overstocked; in a dry season like the present, many good managers are apt to discover that they also have too many mouths. Cattle and sheep always do best where they can have a change of grazing once or even twice a month; as we have often insisted on, a given acreage of clover grass or vetches will produce a greater weight of meat if the food is brought to the animals, instead of being walked over and spoilt by them. With sheep the penning system is the most economical, and has the great advantage of getting the land evenly manured, and making also the best of the cake or other purchased food. Even where sheep are not constantly confined to the pens, it is good practice to enclose the flock during the night. The food is thus kept fresh, and less of it is spoilt. The night pen, which should be moved several times a week, should either be in the same field in which the sheep graze during the day, or in a contiguous field of clover, vetches, or the like. By the adoption of the system of pens, and by increasing the quantity of purchased food, a bad season may be successfully encountered, and a very heavy stocking carried through without loss. In the grazing or penning, whether of cattle or sheep, it is unwise to have too many animals together. One hundred sheep is quite enough to have in one pen. It is important to place together those animals which are about the same age, or state of progress, and that will best agree.

Horses are thriftless inmates of good pastures; they are apt to disturb other stock; they graze down closely the best of the keep, and their summer management is often a difficult question. We prefer the eastern counties' system of keeping the cart-horses of the farm in lots of two or three together in divided yards, which, at this season, are usually kept empty. Here they are supplied with rough grass, cut about the pastures, or, where that is insufficient, with clover or vetches. If turned out at all, they had better be secured by the foreleg, as is done throughout the midland counties of England, and with an iron peg and stout chain confined on the roughest parts of the cattle or sheep grazings, or be similarly tied upon vetches or clover.

For all animals it is most important to look to quantity and quality of the water supply. A good supply of pure, fresh water is, in hot, dry weather, quite as essential to thriving as food itself. With access to a good spring, we often find young stock make wonderful progress, even when the pastures are extremely bare. Running streams are preferable to stagnant pools; but in many clay and fen countries, these pools are the only sources of water during a dry summer. Where pools are the sources of the water for stock, great care should be taken that all mud should be removed almost daily from the points of access to the watering place, so that all stock, but more especially the sheep, may get at the water readily. Sheep will often want water for days rather than walk over rough, poached or muddy ground to procure it. When sheep do not come readily to the pools, troughs should be formed without delay, and fitted from the pools with a convenient hand pump, or a supply brought daily in a water-cart. From being short of water in the summer or autumn, hundreds of young sheep pine and die during the subsequent winter.

During hot, dry weather, the dairyman has his special difficulties to contend with. The cows, instead of eating as much as usual, lie lazily in the shade, or worse still, gallop about, tormented with flies. A sponging over in the morning with a weak solution of carbolic acid, is recommended to abate this nuisance of the flies. In very hot weather milking cows are much better kept in the house during the day, and only grazed at night. A little beanmeal or cake, with some cut food twice daily, will sustain the condition of the herd, and the yield of the milk. In thundery weather the milk is liable soon to get turned, and within twenty-four hours, or better still, in twelve hours, it should be disposed of, skimmed, or set aside for calves or pigs. Ten grains of sulphate of soda, if mixed with each gallon of milk whenever it is brought in from the cow, will greatly retard fermentation.

Lambs after weaning will require for some weeks great care alike in feeding and general management. It is better to take the ewes from the lambs than to move the lambs from the ewes, as is often done. Accustomed to their grazing, their water supply, and other surroundings, the young lambs sooner become reconciled to the separation from their mothers. If they are not already receiving any artificial food, three or four ounces of linseed cake will greatly help thriving, and ward off disease. They should be "run thin;" when put in a fresh field, they should be daily driven to the watering place; little time should be lost in having them dipped, and before the middle of September they should be on roots.—*North British Agriculturist.*

Sheep Combing.

The new system introduced into Australia has enabled those that first followed it to obtain from 9d. to 2s. per fleece more for the clip than they formerly did. The sheep are collected into a long, narrow pen, and when standing close together water from a hose is spouted all over their backs; after this has damped the outside of the fleece, they are advanced forward gradually to a vat filled with water, about the temperature of 70 degs., into which some soda has been put. They swim across this, and are led into a narrow passage from 10 to 20 yards in length and 2 or three feet wide and 3 feet deep, and walk up a gangway, and collect in another pen, whence they are taken to the spouts, which consist of a stream of water about the length of the sheep falling in a sheet about one inch thick. They are held a minute or two under this, being turned all round, and then sent up another gangway to the dripping yard. The wool, when thus washed, is beautiful and bright, and neither harsh nor feeble to the touch. This country has great advantage over Australia as to spout washing, for in a flat country steam or other power is required to raise the water; but here, especially in the pastoral districts, by damming up a burn the requisite fall can be had, and where it cannot, the travelling threshing engine could be taken advantage of, and those who own these could purchase pumps, tanks, &c., and heat the water from the boilers for soaking with, as well as raising that required for spouting.—*James Melvin, Bonnington, Ratho, in London Farmer's Journal.*

Challenge Colt.—Mr. George Addison, of Vaughan, sends us the following communication:—"Mr. Henry Russell, of Etobicoke, has purchased a colt from Mr. George Addison for one hundred and ten dollars. This colt was sired by 'Old, Hard Fortune,' and its dam is the celebrated mare, 'May Flower,' and it is now only eight weeks old. It is pronounced by experienced judges to possess the finest points of any colt in Canada. It is Mr. Russell's intention to exhibit this colt at the principal exhibitions and fairs in the Province, so that owners of other colts may have a chance of testing whether it really is the 'best colt in Canada.'"

Cruelty to Horses.—A correspondent of the *Norfolk Chronicle* has addressed the following observations on the use of the bearing rein, to the editor of that journal:—Amongst those who have the care of horses, few appear to be aware of the pain they inflict on this useful animal by the injudicious use of the bearing-rein. Let any person place his head in the easiest position he chooses, and then have it strapped there two or three hours, he will then have a little experience of the pain the bearing-rein inflicts. Instead, however, of the easiest, let his head be forced into an unusual position and fixed there several hours, the sufferings of the horse from such restraint will be strongly impressed upon him. The pain thus caused is not the only evil. The horse is unable to act freely, he is prevented throwing his weight into the collar, and forced to draw by his muscle what he would do more easily by his weight. Horses not so confined draw greater weights more readily. The reason is evident. At many of the railways horses are worked without bearing-rein or blinders. Observe the heavy loads they draw, and the manner they throw their weight into the collar. Few persons who have witnessed the working of these horses will dispute the worthlessness of the bearing-rein, except for injury. There are other objections to its use. It spoils the horse's mouth, and often his temper, causing uneasiness and fretfulness, as may be noticed by frothing at the mouth, and expression of the eye. It is painful to witness this noble animal subject to needless torture, and I hope the subject may attract the notice of those who are owners, as well as others who have the care of horses.

Veterinary Department.

Diseases of the Horse's Foot.

In a former number we mentioned that during spring and the hot months of summer injuries and diseases of the horse's foot are very common indeed. As a consequence of fast driving and overheating, the sensitive lamina frequently becomes inflamed, and gives rise to very alarming and painful symptoms. The horse is suddenly attacked, he suffers extreme pain, and when forced to move he does so with the greatest reluctance; he stands with his fore feet placed well forwards, and he brings his hind legs well under his body, so as to take the weight off the front feet; and from the position in which he places himself for relief the casual observer is apt to think that the loins are the seat of the disease; whereas the complaint is entirely in his front feet. The pulse is quickened, and in many cases the breathing is heavy and laboured; there is increased heat around the coronet, and the arteries going to the foot will be found to be throbbing violently. When made to back, the horse pulls his fore feet along the ground, and endeavours to throw the greater part of his weight upon his hindquarters. These urgent symptoms require immediate treatment, for if relief is not afforded in three or four days from the commencement of the attack, the disease is apt to terminate in permanent lameness. The shoes should be removed without delay and the feet enveloped in large poultices of bran or linseed meal; wet bandages should also be applied to the legs as high as the knee-joint; the horse should be placed in a loose box or roomy stall, and allowed plenty of clean bedding, as the more he lies the more favorable it is for his complaint. A plentiful allowance of bedding will prevent chafing of the loins and sides, during the hot weather. He should also have a moderate dose of purgative medicine, and if the fever is great, ten drops of the tincture of aconite, every three or four hours, will afford relief. When the stiffness disappears and the horse walks freely, the shoes should be re-applied, and he may be kept standing in moistened clay for three or four hours daily.

As another result of extreme heat, a solution of continuity between some of the fibres of the hoof is a frequent occurrence, and this is known as sand-crack, and so called because it is said to be most common amongst horses raised in hot sandy districts, the heat of which tends to give the feet a predisposition to this disease. Sand-crack is oftener met with in the fore feet than in the hind ones, and in the former the crack is usually situated in the quarters, whilst in the latter it generally occurs in the front of the hoof. In either case the crack may completely penetrate the thickness of the hoof, and as a consequence the sensitive parts underneath are injured and the affection becomes very painful, and of course gives rise to extreme lameness. The crack may extend from the coronet to the sole, or it may be confined to one-half of the wall. Sand-crack is very easily detected. At first a small crack will appear at the coronet, and will gradually extend downwards, becoming larger and larger, and frequently, after rapid exercise, blood will be noticed oozing through the crack, and there is considerable motion between the divided edges when the foot comes on the ground, thus setting up irritation, and frequently matter will form, which if not allowed to escape, will give rise to quitta. A complete crack in the hoof will not re-unite; but the new formed horn must grow from the coronet. In the treatment of this ailment, the shoe should be removed, and the divided edges pared. If matter has formed it must be allowed a free exit, and a poultice of linseed meal should be applied. When all irritation is removed, apply a shoe, so as not to press upon the affected quarter, and therefore, in many instances a bar shoe is most suitable. The growth of horn is also hastened by the application of a blister on the coronet, above the injured part.

The Dairy.

Manufacture of Whey Butter.

A recent number of the *Utica Weekly Herald* contains an account from the pen of Mr. X. A. Willard of a visit paid by that gentleman to a cheese factory in Lewis County, N. Y., where butter is made from whey by a method known as the "Riggs and Markham process." The factory in question is carried on by Mr. Homer C. Markham; works up the milk of 250 cows, (about 5,000 lbs daily,) turns out some 500 lbs. of cheese per day, and manufactures from the whey sixteen pounds of butter daily. Of this butter, Mr. Willard, no mean judge, says, that it is a decidedly good article, not equal indeed to first-class Orange County butter, but a marketable article, better in flavour than half the cream butter found on hotel tables, so excellent indeed that nobody would suspect it of being made from whey. In reference to the quantity obtained, Mr. W. remarks that the cheese-making at Mr. Markham's factory is most careful and thorough, so that it is only fair to conclude that the whey is of poorer quality than what is usually obtained at factories. The following is a detail of the method by which the butter is made at this factory:

"The whey is drawn directly from the cheese vat into the heating vat, which stands in an adjoining apartment and below the cheese vat, so as to allow the whey to be readily run from one vat to the other. The heating vat has a copper bottom, and is placed over a brick arch. It is preferred that the whey be drawn sweet. Then, for every fifty gallons of the sweet whey, one gallon of sour whey is added. If the acid is not sharp, one pound of salt is incorporated with it. Heat is then immediately applied to the mass until it indicates a temperature of 175° to 180°. When the cream rises, it is skimmed off and set in a cool place and left to stand till next day. It is then churned at a temperature of from 56° to 68°, according to the temperature of the weather, and is then worked and salted in the ordinary manner of butter making. Usually, under this process, five hundred gallons of whey will make twenty pounds of butter. On the day of our visit to the Markham factory, no acid was added to the whey, but a little salt added to the mass when the temperature had reached 160°. When the thermometer indicated 170°, the cream commenced rising, and was soon thrown up, and Mr. Markham commenced dipping off soon after the cream commenced rising, or before it became thick and hard. He dipped with a broad, square tin shovel with a short handle, dipping down into the whey and removing a portion of it with the cream. He dipped into a large pail, and when full emptied into a large milk can having a faucet at the bottom, and which stood in one corner of the room. This can was nearly or quite filled with the cream and whey. Mr. M. lets it remain in the can to cool off, and the next morning, just before churning, the faucet is opened at the bottom, and the whey which has separated from the cream drawn off. The cream is then taken out and put into the churn, and churned by dog-power. Mr. Markham's factory is a model of neatness, and both the whey and cream are kept clean and free from specks. The butter, therefore, contains no more impurities than the cheese."

The manufacturer claims that his butter, if properly stored in a good, sweet cellar, will keep for a long time. Mr. Willard, while doubtful as to its keeping qualities, justly observes that if it will keep long enough for present use and for this purpose is equal to the great bulk of butter made for the table, it would be a vast saving of money to dairymen if this process could be generally introduced.

"On the assumption that the whey from 250 cows gives fifteen pounds of butter per day, a factory of 1,000 cows would turn off sixty-four pounds of butter, while the cost of apparatus and making for the large number of cows would be but a trifle more than the smaller number. Sixty-four pounds of butter, say at an average of thirty cents. per pound, would amount to $19.20 per day, and if only four months be taken, say from the 20th of May to the 20th of September, or 120 days, we have $2,304 for a single factory."

As to the value of the whey for feeding purposes, after being deprived of its oil, the cooked state of the whey is thought to go far toward counterbalancing the loss of the oil. Mr. Markham believes it does more, and says that his experiments in feeding hogs on each kind of whey prove this. Be this as it may, it certainly will not pay to feed hogs with butter at the present market price of the article. An equal weight of bran substituted for the butter, would certainly make the whey more nutritive than with the butter left in it. As to the labour and cost of manufacturing butter from whey, Mr. Willard says:

"The apparatus is very simple and inexpensive—a vat with copper bottom over a brick arch would be the main outlay. For a large number of cows we presume some extra labor would be needed, but such additional labor, with proper conveniences, can not be much. At Mr. Markham's factory, Mr. M. has but one assistant—a girl. They two do all the work about the factory, manufacturing both the cheese and butter. Fuel, too, is required. Of the amount some estimate may be made from the quantity used by Mr. M., a cord of 18 inch wood (hemlock slab) lasting eight days. We could not see that the labor of extracting the cream was of much account. The whey runs from the cheese vat to the heating vat simply by arranging the pipes; a little fuel is thrown under the heating vat and the cream skimmed off. It can all be done by those attending the cheese vats How much additional labor will be required to churn and pack the butter, dairymen generally can estimate. The cream, we were informed, readily churned into butter. Occasionally, if gathering the butter is delayed, it is readily obviated by using warm water in the churn, say at a temperature of blood heat."

We have transferred to our columns the leading points in reference to the process of making butter from whey, and we commend the matter to the attention of Canadian dairymen. Further particulars may doubtless be had by addressing Messrs. Riggs and Markham, Turin, N. Y.

Hunting for the Cows.

Many of our farmers have wasted years of valuable time just because they did not teach their cows to come home at night. Any one who has ever lived or travelled in the country will remember the familiar "Co-bos," "Co-bos," of the farmer's son, or hired man, as they endeavour to coax the cow from the woods or the tall grass in the great pasture. We have had a little experience in these matters, and well remember how many times we have waded through the brush and bogs looking for the cows, and boylike, we thought them dreadful contrary animals. But we have lived long enough to learn better, and now think that the biped was the more contrary animal of the two. Boys, we will tell you a secret that will save you a great deal of trouble, and it is this: Just sow a few rows of corn in drills, where it will be handy to the milking place, and every time the cows are driven up at night, or in the morning, give each one a good armful of the fresh cut cornstalks, and our word for it the cows will always be on hand at milking time. Besides this, they will give more milk, and forget to kick over the milk pail, even if you do whistle a little too loud.—*Weekly Sun.*

Milk from a Calf.—I have an Alderney heifer, eleven months old, that I accidentally discovered, a week ago, had milk. I have drawn it daily since, and the quantity increases. Can any of your subscribers inform me if there is anything very strange about this, or whether it will be any injury to continue to milk her?—*S. A. J. in Co. Gent.*

Honesty.—A boy, whose honesty is more to be commended that his ingenuity, once carried some butter to a merchant in a country village to exchange for goods. The butter had a very beautiful appearance, and the merchant, desirous of procuring such for his own use, invited the boy to bring him all the butter his mother had to spare. "I think," said the boy, "she can't spare any more, for she said she would not have spared this only a rat fell into the cream, and she did not like to use it herself."

Collett's Antiseptic.—The attention of cheese-makers and others is directed to Mr. Collett's advertisement in the present issue. We believe that the rennetts which he supplies are of first-class quality. We have also a high opinion of the antiseptic preparation that he advertises. Practical experience and chemical testimony concur in commending its use for a variety of purposes besides that mentioned in the advertisement. It has been successfully used in preserving meat fresh, both in this country and in England.

The Apiary.

Management of Frame Hives.

Now that movable-comb or frame hives are being extensively introduced, it may be well to give a few hints respecting the management of bees in such hives. Frames are put in hives in order that the bees may build their combs in them, so that the combs may be removed at pleasure. Now, it is thought by some that all that is necessary to do is to put the bees in the hive, and pay no further attention to them until they wish to remove the combs, when they expect to find them nicely filled in the frames, touching each other at no point, and as easily removed as the frames would be if empty. Such persons are sure to be disappointed. On opening the hive they not only find the combs attached to each other by bars, often appearing like a solid mass, but even some of the combs built across from one frame to another. Now, it should be remembered that no hive, can be constructed that in every case will ensure combs built exactly straight in the frames without any attention on the part of the bee-keeper. But with a well-constructed frame hive and proper management, straight combs may always be secured. In the first place, before the bees are put into a frame hive, the hive should be examined, and all the frames properly adjusted on their bearings: the bees may then be put in and the hive placed on its stand, which should be level, so that the hive will not lean to either side; but the hive may lean to the front or rear, as that will not cause the bees to build crooked. In four or five days after a swarm has been put into the hive it should be examined, and if there is then any inclination to build crooked, it can then be remedied by simply raising the frame and pushing the comb back to its place. In this way straight combs may be had in every hive. When it is found necessary to examine a stock and remove the frames, the bees should first be smoked a little, driving them down from the top to the centre of the hive. Then all bars that connect the combs should be cut away. There is no amount of honey in the bars, they being put there simply to strengthen the combs. When these are once removed, there is no longer any difficulty in removing the frames, which should at first be raised gently from their bearings and moved close together until sufficient room is given to remove a card of comb without crushing the bees. Too much should not be expected from the bees, but we should be more than satisfied if, with a little attention on our part, and the use of a frame hive, they may be caused to construct their combs in such a manner that they may be lifted out with so little difficulty. That the cards of comb may be separated, and removed from the hive at all, is a wonder, but by attending to the above hints every card from any number of hives may be removed, examined, and replaced at pleasure, giving perfect control over the bees and their combs.

Surplus Honey.—A subscriber sends the following queries:—

"Will you or some of your correspondents, experienced in the matter, please answer through the Canada Farmer the following questions:

"How long, after putting a young swarm of bees into a hive, should it be before I put in the surplus boxes; or should they be put in when the bees are?

"When is the best time to remove bees from one hive to another, taking care that they shall have time to gather honey sufficient for their winter's use?"

Ans.—The surplus boxes may be put in a hive three or four days after the swarm has been put in; but never immediately after the transfer unless there are already combs in the body of the hive, in which case they may be put in at once.

Bees may be removed from one hive to another at any time after fruit blossoms appear, either before or after swarming. Generally the earlier it is done the better after the honey harvest commences.

Report on the Philadelphia Raspberry.

To the Directors of the Fruit Growers' Association of Ontario.

It is now four years that the writer has had this Raspberry in bearing, and has in that time grown it with most, if not all, of the leading sorts of Raspberries, and carefully compared it with them all as to vigor of growth, hardihood or ability to endure the cold of our winters and the heat of our summers, productiveness, size of berry, and flavor. After such a test and comparison there seems to be a propriety in giving the opinions and conclusions that have been formed with regard to this fruit to the public in the form of a report to the Fruit Growers' Association.

Among all the Raspberries generally known or cultivated, the common black Raspberry, or as it is sometimes called, the Black Cap, so universally to be found in neglected clearings and fence corners, is the most hardy sort we have, withstanding perfectly our coldest winters, and enduring the heat and drouth of our summers. But this berry, with all its good qualities, still lacks the size and juiciness of the Antwerp class, while the Antwerps, though yielding large and juicy berries, could not withstand the cold of our winters without protection, and suffered often very severely during the trying heat and drouth of our summers. A Raspberry that should combine the powers of endurance possessed by the Black Cap, and yield a fruit as large, juicy and high flavored as the Antwerp, was and is a great desideratum. The writer procured the Philadelphia under the assurance that it did combine these qualities in a good degree, and it is the purpose of this Report to show how far this variety may lay claim to such great excellence.

In flavor it is not equal to most of the Antwerp class. The Brinckle's Orange stands at the head of all the raspberries growing in these grounds for richness and delicacy of flavor, and Franconia, Hornet, Imperial and Naomi all take precedence, in the writer's estimation, of the Philadelphia in point of flavor; not that there is anything unpleasant in the latter variety, but it lacks the richness of the others.

It is much more pulpy and juicy than the Black Cap, and in this respect is a decided advance on that variety, yet not quite as juicy as the other varieties above mentioned.

It is also larger than the Black Cap, considerably larger, yet not equal in size to the Franconia, and much short of the great Hornet.

In productiveness it far exceeds any of the sorts mentioned in this report, and is in this respect far superior to any variety that has been cultivated here. Indeed the load of fruit is quite surprising, and were it not that the canes are more stout than most varieties produce, the burden of fruit would drag upon the ground. In abundance of fruit it is (as was stated by Mr. Arnold, of Paris, at the last meeting of the Association) among the raspberries what the Wilson is among strawberries, head and shoulders above its fellows.

The test of five winters leads the writer to believe that the Philadelphia is *perfectly hardy*, as hardy as our native Black Cap. It has not killed back at all in some winters, and in others only the extreme tips have suffered. The blossoms are not injured, but come out along the whole length of the cane, hence the very abundant crop it produces every year.

It also endures perfectly the heat and drouth of summer, growing luxuriantly and perfectly its fruit much better than the Franconia. Not that in such an extreme drouth as has prevailed in this vicinity for the past five weeks it perfects every berry, or shows no lack of moisture, or that in hard or nearly sterile soils it will not flag under such intense heat and continued drouth; but in the same row with the Franconia, in the same soil and receiving the same treatment, it suffers less from heat and drouth, and brings to perfection a heavier crop.

The habit of growth is unusually vigorous, stout, and upright, enabling the plant to sustain its enormous crop; the foliage is deep-colored and heavy, and thus far there has no disease or symptom of disease appeared.

The conclusion to which we are carried by these experiments and comparisons is, that in the Philadelphia we have a raspberry that leaves nothing to be desired in health of natural constitution, in hardihood to withstand the cold of winter or the heat of summer, nor in immense productiveness. On the other hand, it does not possess all that we could desire in flavor nor in size of fruit.

Here is opened a field that needs at once to be cultivated by the careful hybridizer. With a mother so hardy and productive as the Philadelphia, what may he not hope to attain by crossing with the Brinckle's Orange for flavor, or with the Hornet for size? He who will add to the perfect hardihood and abundant fruitfulness of the Philadelphia, the size of the Hornet and the flavor of Brinckle's Orange, should receive a gold medal from the Association, and the lasting gratitude of his countrymen.

Meanwhile we must not do without our raspberries, and until such a happy combination is achieved, we can do nothing better than recommend every one to give the Philadelphia a trial.

Your most obedient servant,
D. W. BEADLE.

St. Catharines, 22nd July, 1868.

Failure of Young Orchard Trees.

To the Editor of The Canada Farmer.:

Sir,—I have noticed recently considerable failure among young fruit trees (the apple in particular), of two, three and four years' growth. As I own quite a number of different varieties, and from fifty to two hundred and fifty of each kind, my experience may be interesting as showing which are the hardy, which the tender varieties. The Baldwin seems to suffer most with me, the greatest part of them being dead to the bottom of the stem, while in some few the tops are entire, and others have escaped with the loss of a few branches.

The Rhode Island Greening comes next. A few have passed the season with the loss of the tops, and others with loss of last year's growth, but the greater part are doing well. I have lost others from the bark splitting from the ground from six to nine inches up the stem. This occurred early in the fall, as I supposed from too rapid growth. I should like to know if there is any means of preventing this. I have observed it before in trees of the same age, but with less fatal effect. It generally happens about the second year after planting, when they have begun to grow well.

Other varieties have been affected, but not to such an extent as the Rhode Island Greening and Baldwins. I shall try and send you a correct list of the loss on the different varieties as soon as I can get time. Pears have been damaged by the frozen sap blight. I have over one hundred dwarfs and standards, from four to six years old. In many cases I had to cut within one foot of the ground in order to get sound wood, and to remove a good many branches off others. Plums seemed to promise well, but now some trees shows signs of giving out, the stem getting dead first; others losing half of the tops. Out of about fifty trees there are only about six healthy, and the plums on all of them are shrivelled on the branches and dropping off from the excessive heat and dry season, although the trees were early mulched.

There was a good show of blossom on all fruit trees, but what was formed is now dropping off. I have older planted apple trees of the same varieties as those above mentioned that have stood well. The complaints are general respecting the young orchards here. I should like to know if in other parts of the Dominion the young orchards have been similarly affected. I may mention that we have had one of the coldest winters on record; an early break up in spring, cold weather again setting in. The fall was late, and exceedingly fine.

I have this spring destroyed the gooseberry caterpillar by mixing two dippers full of soft soap and one of air-slacked lime in a pailful of water, and thoroughly drenching the bushes with it, the leaves and ground remaining white with the lime. The variety on which I operated was the Houghton.

J. M. L.

Owen Sound, July 20th, 1868.

Toronto Electoral Division Society's Show.

The Summer exhibition of the Toronto Electoral Division Society was held on Thursday, 16th ult., in the Horticultural Gardens. The grounds, as usual at this season of the year, presented their varied attractions of foliage and flowers. The exhibition of Horticultural products, was laid out in a spacious tent at the northern part of the grounds. We are sorry to confess that the display altogether very much disappointed us; and it is a cause of much regret that the praiseworthy efforts of the Society to produce a love of horticulture are not more generally seconded by the gardeners and amateurs of Toronto and the neighbourhood. But for the liberality and generous interest taken in the institution by a few gentlemen in the neighbourhood, the show would have been meagre indeed. As it was, it owed its principal attraction to some fine collections of stove and greenhouse plants contributed by Hon. D. L. Macpherson, C. S. Gzowski, Esq., Judge Morrison, F. C. Chisholm, Esq., and one or two others. The number of exhibitors was remarkably few, and the prizes were distributed among only nine or ten persons altogether. A horticultural show in such a city as Toronto ought certainly to be very differently supported. The scarcity of exhibitors does not, however, in the least detract from the merits of those who competed, and who enriched the collection with some very beautiful specimens.

The centre of the tent was occupied by a long table, on which were displayed a very fine collection of stove and greenhouse plants, among which were very beautiful fuchsias exhibited by F. C. Chisholm, Esq. The same gentleman showed also on this table some fine black Hamburgh and Chasselas de Fontainbleau grapes growing in pots, and well loaded with rich-looking clusters of fruit. Conspicuous in this collection were a number of foliage plants and ferns, native and foreign, shown by C. S. Gzowski, Esq. Judge Morrison and Hon. D. L. Macpherson had also a variety of beautiful greenhouse plants on this centre table. Ranged on each side, upon the ground, were some palms and fruit trees grown in tubs, the latter bearing well, and all looking remarkably healthy. These were chiefly furnished by Mr. Gzowski. The remaining flowers were displayed on a table along one side of the tent, the table on the opposite side being occupied, very sparely however, with specimens of garden vegetables.

Among the flowers we noticed specially a plant of Yucca Filamenta flowering very handsomely and profusely, shown by Mr. James Fleming; also a variety of cut flowers, some very fine, some good hand and table bouquets, and a few beautiful baskets of flowers.

There was a small display of fruits—among them some fine grapes shown by Mr. Chisholm; peaches and other greenhouse fruit grown by Hon. D. L. Macpherson and C. S. Gzowski, Esq. Mr. Leslie showed some good cherries of the following varieties—Cleveland Biggareau, Belle de Choisey, Guigne Noir, Lincante, Napoleon Biggareau, Elton and Black Eagle. The same gentleman showed a few strawberries of the Agriculturist and Jucunda varieties, but these were past their prime. There were also, notwithstanding the dry season, a few plates of large raspberries, and none finer than those of Mr. Edwards, the Secretary. Judge Morrison and Hon. D. L. Macpherson showed some very fine currants.

Of the display of vegetables we cannot say much. We only trust that the exhibition in this department was no indication of the general produce throughout the country.

The judges were Messrs. Charles Weston, David Murray and Edwin Townsend, all of Hamilton.

Correspondence

Alsike Clover.

To the Editor of The Canada Farmer:

Sir,—It has been said by some that the Alsike Clover would not do well in Canada, that after the first year it would die out and fail to produce an abundant crop. That such is not the case, however, the sample I now send you will fully prove. It was grown by my brother, H. M. Thomas, of Brooklin, Ontario, and was taken from the same field that last year produced eight bushels of seed to the acre, this being the third year's growth. The whole field is a swamp of clover, and a perfect wave of flowers. It has been in full bloom for four weeks, and will continue for at least a week longer. It is abundant in honey, and a perfect cloud of bees visit it every day. For two weeks past the weather has been so dry that other flowers have secreted but little honey. Even white clover has failed to secrete its usual abundance, but my brother's bees have continued gathering large supplies from the Alsike Clover, and storing large quantities of surplus honey. I would urge the growing of this clover as being one of the best honey-producing plants, while at the same time it is more productive as a hay crop than red clover, and better calculated for winter feed for cattle. Eight or ten acres will be found sufficient pasturage for forty or fifty stocks of bees, and will well repay the trouble of growing it. H. M. Thomas will again have plenty of the pure seed for sale, which will be advertised in proper time.

J. H. THOMAS.

Brooklin, July.

Note by Ed. C. F.—The sample of Alsike Clover accompanying the above communication, exhibits certainly a most luxuriant growth; some of the stalks even now, though somewhat shrank, measure nearly five feet in length, and the average of the bundle is four feet nine or ten inches; which, especially considering the recent dry weather, is sufficient evidence that this plant is at home in the locality. Mr. Thomas's continued success in the cultivation of this crop, and the favorable account which others also give in reference to their own experience with it, should induce Canadian farmers generally to give it a trial.

Fine Sample of Wheat.

We have received from Mr. Samuel Berriman, of Stamford, a splendid-looking sample of Soule's Wheat, the heads being fully six inches long, and the stalks six feet. The date of the letter which accompanies the specimen is July 7th, and from the shrank condition of the grain we judge it was gathered very green. We cannot therefore say how the yield would prove when ripe, but subjoin Mr. Berriman's account, though we fear he will be greatly disappointed. "The sample," he says, "was grown in a light sandy soil, on the highest point of the mountain here, and distant about three miles from Niagara Falls and the Suspension Bridge. The subsoil is gravel, over one hundred feet deep. The yield cannot fall short of forty bushels to the acre.

"I have grown this description of wheat for sixteen years, regardless of midge, and with one solitary exception have done better than with any of the rough wheats, such as Midge-proof and Mediterranean.

"One acre of White Wheat is worth nearly two acres of red—in this way, supposing two acres in one field, the condition being the same in every respect, the one red, and the other white, both apparently equally good, if the red yield twenty bushels, the white will yield thirty. Now as to the price: if the red be worth $1 30 the white will bring $1 75. The straw also from the white is worth more than the red."

Bent Grass.

To the Editor of The Canada Farmer:

Sir,—I send you herewith a living specimen of a grass that grows somewhat abundantly in this city. It is the *Agrostis Alba* or *stolonifera* of botanists, and is known in common parlance as white bent-grass, or florin grass.

Unlike its congener, *Agrostis vulgaris* (red-top), it is not suitable for a hay crop, but it is one of the most valuable of known grasses for pasture, on heavy clay soils, or clay loams in moist situations, and when cultivated in such will surely double their productiveness. It will also prove very valuable to the landscape gardener in this country, for lawns and parks; making, when cut short and well trimmed, a thick green carpet with a soft nap.

As grass may be considered the basis of the farmer's wealth, I have sent you this specimen that some of your agricultural visitors may see it, and may possibly send other specimens to the exhibition at Hamilton.

A. KIRKWOOD.

Toronto, 22nd July, 1868.

Sheep Ticks.—A correspondent writes:—"Have you used with success, and do you confidently recommend 'Miller's Tick Destroyer?' This spring we used tobacco water for our sheep; whether we used it too strong or not I do not know, but several of the lambs were found dead a few days after."

Note by Ed. C. F.—We have used and can recommend Mr. Miller's Tick Destroyer as an efficient remedy for sheep ticks. Tobacco requires to be used with the greatest caution. The writer adds a note respecting a weed which has been very prolific in his neighbourhood The name is not clearly written. If he will send a specimen we can most likely tell him something about it.

The Canada Farmer.

TORONTO, CANADA, AUGUST 1, 1868.

The Season.

In our last editorial on the weather and crops (penned July 8), we chronicled "recent heat and drought." Since then, these inflictions have continued with augmented intensity, so that at this writing (July 28), every green thing is well nigh dried up. It seems hardly credible that so great a change can have taken place in so short a time. Yet so it is, adding another to our many lessons concerning the mutability of earthly things, and the uncertainties that beset the farmer's calling. Spring grain and root crops have suffered very severely, but it is matter for congratulation that the hay and fall wheat escaped, being too early to be injured by the heat and drought. It remains to be seen how far the remainder of the season may repair damages, but at present all nature has a scathed appearance which tells but too plainly of the fiery ordeal through which it has passed. Nothing shows the severity of that ordeal more convincingly than the state of recently transplanted trees. The early part of the season was a most favourable one for tree planting, and there were scarce any failures. Now, however, it is widely different. There has been great mortality in new plantations, nor are there wanting instances in which old established trees have succumbed. Liberal mulching has proved the only successful protection. Where this has been practised, life and growth have been maintained with very few exceptions. Heat seems to agree with insect life. The plague of flies has been worse than usual. Grasshoppers have been very numerous. The Cicadas have made merry all through the hottest days. Gardens and orchards have suffered greatly from insect pests. "The little busy bee," however, is an exception. It has found the heat unbearable, and has done little for days together, but fan itself, like a "nothing-to-do" lady.

Emigration Documents and Arrangements.

We have before us the "Return" to an address of date 7th May, 1868, by the Senate of the Dominion Parliament for all the correspondence which has taken place from the first of January last to the date of the address, between the Minister of Agriculture and the various emigration agents in all parts of the Dominion, as also in any ports of Europe, bearing upon the probable extent of immigration to be expected in 1868, and the arrangements made to meet and encourage said immigration; and the "first report of the standing committee on immigration and colonization."

A very considerable number of the letters given in the "Return" are of very little general interest, referring as they do principally to estimates of the probable expense of each agency during the current season, with instructions on the part of the Bureau, that the plan of forwarding destitute immigrants from Quebec to their destinations would henceforth be discontinued, or at the very most that any allowance of the kind would only be made in very exceptional cases. Against the strict enforcement of this regulation the emigration agents urge some very strong objections.

It is somewhat difficult to strike the just medium in such a matter, for it is very manifest that the system of "forwarding" is liable to great abuses; and, as a matter of fact, we believe has been greatly abused. Sometimes this has been the case from persons presuming upon this arrangement, and being sent with means barely sufficient to land them destitute in Quebec, as if afterwards the Canadian Government would take all care and all expense, and treat such immigrants, and care and provide for them, as if they were children. Often also we believe this kindness has been abused by parties who had means, feigning poverty, in order to secure conveyance at Canadian expense. At the same time, to make anything like a very stringent regulation stopping all this, might sometimes inflict great injury upon very deserving and very suitable parties, and deprive the country of some excellent settlers. It would be likely also to levy an extra tax upon the landing places, and possibly to divert a good deal of the immigration from the St. Lawrence altogether; for, as the agents urge, it is not to be forgotten that, after all, the capitation tax levied on each emigrant more than meets all the forwarding outlay, and even those who land without any intention of remaining in Canada, benefit the railways to a very considerable extent, and expend a good deal for provisions as well; so that it would be a matter of regret if anything should arise to stop the course even of that immigration by the St. Lawrence, from which our country derives the least benefit. We must acknowledge, at the same time, that we can see very little occasion for such excessive liberality as has been exhibited when parties have been "passed" through from Quebec to Chicago at Canadian expense. Let it be clearly understood that those who come to Canada must come prepared to work at the very earliest opportunity, and at whatever comes readiest to hand, and that all that can in reason be expected is that they be helped to the nearest place where their labour can be made available, after which they must look to themselves for providing the means to take them "further west." Thousands and tens of thousands have found Canada a "good land;" but those chiefly have benefited by it who have most fully believed in self-reliance and self-help. The Government can do a good deal, and it ought; but it is not to be expected that it should do everything.

From the correspondence we do not learn that anything has been done during the winter of this year to ascertain what may be the wants of the country, and where may be the most likely places for immigrants finding employment and a home. From all that is here published one cannot learn that anything like systematic enquiry has been set on foot, or that the local authorities in counties and townships have been at all communicated with.

Some requests were made by agents to be allowed to visit their districts and seek to ascertain by personal canvass how many immigrants might be likely to be absorbed in the various localities, and while these requests have not been absolutely refused they have been received in such a way, that nothing in the way indicated has been done. Even apart from personal visits, a great deal surely could be done by correspondence, if that were set about with something like heartiness and energy, but we are not told that this has ever been attempted. Even so early as the 6th of May, Mr. Donaldson, of Toronto, tells the Minister of Agriculture that the farmers around this city had been pretty well supplied with labourers, and suggests that a notice should be put into the journals inviting those at a distance to send in a statement of their wants; but we are not aware that such a notice has been to this day given in any paper in the western section, if indeed in any part of the Dominion. In short, with the exception of Miss Rye's female emigrants, which was not a Government undertaking at all, no attempt has been made to establish anything like a labour exchange, or to bring those who wish to hire and those who wish to be hired into contact and communication with each other.

In the Report of the Standing Committee, some rather interesting facts are given. The relation of the Dominion Government to the whole business of immigration is somewhat ill-defined and anomalous, inasmuch as the whole disposal of lands, minerals, &c., in each of the Provinces is entirely at the disposal of the local authorities. The first thing, accordingly, which the committee did was to issue a circular to the heads of the various Provincial Governments, asking their opinion on the point. To this circular, the answers of the Attorneys-General of Ontario and Nova Scotia are given, the latter, by the way, a production whose main object appears to be a display of the writer's dislike to confederation.

We are then informed of the Sanitary Arrangements for the reception of immigrants at Quebec, St. John, New Brunswick, and Halifax. The Quarantine expenses at Quebec were in 1866, $21,346 07. In New Brunswick for the same year, $418 65. In Halifax the expense, which is not specified, has been met by a tonnage on vessels.

The Agencies at work in 1866 are next noticed. In that year the salaries paid to the local agents in the Province of Canada were as follows:—

Quebec	$6,319.72
Montreal	1,500.00
Ottawa	800.00
Kingston	800.00
Toronto Agent and Assistant	1,817.00
Hamilton	780.00
Total,	$12,016.72

The total expenditure in the Immigration Department for the year in the above mentioned province was as under:—

Quarantine Establishment	$18,146.07
Inspecting Physicians	3,200.00
General Expenditure	7,148.81
Emigration, indirect relief	14,180.36
Contingencies of Agencies, Rents, Printing, &c.	3,911.72
Salaries of Agents	12,016.72
Total,	$58,603.68

Foreign immigrants during the same period paid to railway and forwarding companies for their inland transit alone over $100,000, besides the outlay for provisions, &c.; while the amount of immigrant tax collected in Quebec and Montreal amounted to $26,857, or nearly one-half of all the official expenditure on immigration.

In New Brunswick, there was in 1866 only one immigration agent, at an expense of about $1,000. About 808 persons arrived during the year in that province, of whom about 450 became permanently resident.

In Nova Scotia there was also one immigration agent, at a salary of $800. The number who came into Nova Scotia in the year specified was 932, of whom most of those who were agricultural labourers remained. The vote for 1867 was $4,000.

In 1866, in Quebec and Ontario, 3,393 immigrants were assisted to their destinations, at an expenditure of $14,180 36. What has been done in this way in New Brunswick and Nova Scotia cannot be ascertained, or at least is not given. A large portion of the report is taken up with a description of the terms on which lands can be acquired in the different Provinces, either by free grant or by purchase.

The system inaugurated at the beginning of the year in Ontario is described, and, with certain differences in detail, those of the other Provinces. We are glad to learn that the plan of Free Grants in this Province, though far less liberal than it ought to have been, is likely to have considerable success. It is mentioned that the Assistant Commissioner of Crown Lands for Ontario has sometimes had as many as 300 applications in a single day. The conclusions at which the committee arrived, and the recommendations they suggest to Parliament, are given in the following extract. Mr. Dixon, the agent in England, it will be observed, is blamed for sending out persons quite unsuitable for the country, though the evidence in support of this is not very convincing. It is recommended that his agency be suppressed, and in short that the whole system be reorganized, as it very much needs to be.

"The system," says the Committee, "which has been in existence for furthering and aiding immigration to Canada, has not been productive of satisfactory results, neither is it, in the opinion of your Committee, adapted to be so under the law which has placed the public lands under the control of the Provincial Legislatures.

"In order to avoid a conflict of authority, and to secure the efficiency of any general immigration scheme, it is necessary that there should be an understanding, and, consequently, co-operative action between the General and Provincial Legislatures. In the meantime, and before any such concurrent action can be agreed upon, your committee recommend that such care and assistance be extended to emigrants arriving seaward as may be necessary.

"Your committee recommend a discontinuance of the agency at Wolverhampton, in England, and such a reduction of the staff at Quebec, Toronto, and other agencies, as can be made consistently with the recommendation in the preceding paragraph, with a view to the early reorganization of these agencies.

"As the success of the emigrant depends greatly upon his willingness and ability to adapt himself to the conditions to which alone success is to be expected, your committee suggest that great caution and circumspection should guide any public effort to induce persons to emigrate. While Canada offers health, prosperity; and freedom to the industrious labourer and mechanic, she cannot assume any responsibilities on behalf of persons whose occupations or habits have been unfavourable to self-reliance, or to the practical exercise of intelligent efforts.

"Your committee have received a number of letters containing suggestions on the subject of emigration, and offers, on the part of the writers, to place their services at the disposal of the Government, as writers or lecturers on the resources of Canada, in Europe. It is not incumbent upon your committee to express any opinion in reference to the suggestions themselves, or to the gentlemen by whom they are made; for, if the views to which your committee have given expression, in this report, are in accordance with those entertained by your Honourable House, it will be the obvious duty of the Government, in conjunction with the Provincial Governments, to adapt the agencies in Canada, and elsewhere, to existing circumstances.

"The prospective acquisition by Canada of the fertile lands in the valley of the Saskatchewan and its tributaries is, no doubt, interesting to thousands who purpose to migrate from the Parent Country to one of its dependencies. In the present state of the relations between the North-West Territory and Canada, no precise plan for its settlement can be recommended or even considered by your committee, but they submit that, without any unnecessary delay, as much of these lands as are fitted for agricultural purposes should be made accessible, through the British territory, and offered on such terms as will be attractive to a class of settlers who desire to enjoy the fruits of their industry under the security of British laws and institutions.

"Coincident with the construction of the Intercolonial Railway a large quantity of land hitherto inaccessible will be available for settlement. During its progress the labourer will earn the means of sustaining himself in the early stages of his settlement. The chief drawback to settlement hitherto has been the difficulty of obtaining employment at a convenient distance, and then of conveying produce to market over a long line of almost impassable road. On the line, and within the influence of the Intercolonial Railroad, these difficulties will not exist; therefore your committee urge upon the Government of the Dominion the necessity of co-operating with the Provincial Governments, through whose territory the road will pass, in the adoption of a well considered and liberal policy with regard to settlement.

"The Legislatures of Ontario, Quebec, and New Brunswick, respectively, have passed homestead exemption laws. The former has also devoted large tracts of land for the behoof of actual settlers, in free grants of one hundred acres each, with permission to purchase an additional one hundred acres at fifty cents an acre. Though these terms are not precisely similar to the Homestead Exemption and Free Grant system of the United States, they are presumed to be equally favourable. Your committee doubt not that the terms will be altered or modified, should it be found in the interest of settlement to do so. The new policy, so far, appears to be liberal and progressive, and may be held as justifying a claim for adjustment by persons in arrears to the Government, on account of purchased lands in the comparatively recent settlements, but which lands, for various reasons, are of little real value."

"The mode in which the mineral lands in the Domion are to be disposed of, and the obligations imposed by the Governments, with regard to the manner of working these lands, will very much affect the number of mining immigrants, as well as the flow of capital necessary for the developement of our mineral resources.

"The mode of disposing of these lands should be at once inviting and encouraging; therefore your committee desire to express the hope that the public policy in regard to them will be quite as liberal as that which appears to have succeeded in the United States. By the investment of capital in extracting the treasures of the mines, a consuming population necessarily follows, so that, besides giving value to that which has no value while hidden in the earth, a home market is opened for the produce and manufactures of the country."

Beet Root Sugar Making

The *Mark Lane Express* of June 15th, 1868, contains an exhaustive paper on the beet sugar question, occupying nearly six columns, and written by the "Old Norfolk Farmer," a well known and able contributor to that influential journal. We cull a few particulars, bearing chiefly on the practicability and profit of beet sugar-making in Britain.

It would appear that there are two kinds of sugar possessing different characteristics and requiring different processes in their manufacture. The first and best of these is extracted from the cane, the Silesian beet-root, and the maple. The manufacture of sugar from these plants is purely a *mechanical* process. The second kind, termed "*a factitious*" sugar, is obtained from the grape and other ripe fruits, and starch or farina. To procure it, chemical agents and processes are necessary. The beet, therefore, ranks among the highest and best of the sources whence sugar is obtained.

Actual experiment has demonstrated that beets grown in Britain yield as large a proportion of saccharine material as those grown on the continent of Europe. The report of an investigation undertaken by Sir Robert Kane, director of the Museum of Irish Industry, and presented by order of Her Majesty to both Houses of Parliament, is most conclusive on this point. No fewer than 118 specimens of Irish-grown beet roots, from various localities, were carefully analyzed, when it was found that the quantity or percentage of sugar they contained ranged from 3½ to 14½, the low average being from large, and the high from small roots. It was also found that condition and quality of soil have much to do with the proportion of saccharine, but on all soils, the small roots yielded a larger proportion than the large ones. Comparison of the Irish beet with the Belgian beet shows that the former is fully equal to the latter.

Notwithstanding this fact, it is well known that while on the continent of Europe beet-sugar-making is a large and increasing interest, the attempts made in Britain to establish this branch of industry have proved failures. So far as England is concerned, three manufactories have been started, but were unable to make the thing pay, owing to the very heavy differential duty levied upon indigenous sugar. In other words, protection ruined them. The West India influence in the British Parliament was fatal to home industry. An effort to set going a similar establishment in Ireland also failed, from what cause or causes we are not informed, but it is distinctly stated that it was in no respect owing to the soil or climate not being adapted to the cultivation of the root. The French Government adopted a different line of policy, and protected the beet-sugar industry while in its infancy, by levying a duty on imported sugar. After a time a small tax was imposed on beet-sugar, which was gradually increased until in 1848 an equalization of the duty was effected, and the home-made sugar put upon the same footing as the imported article. Still the manufacture of beet-sugar progressed, being found highly profitable, until at length the French Government imposed a differential duty of five francs per cwt. on beet-sugar above that paid by the tropical sugar. So far from this branch of industry being annihilated or even injured by the governmental policy just described, it has steadily prospered, so much so that the product has more than doubled, as the following statement will show:

PRODUCE OF BEET-SUGAR MANUFACTURE IN FRANCE.

Year.	Tons.
1847–8	51,716
1850	100,000
1864–5	147,000
1665–6	275,000 (a very fine season.)
1866–7	215,000
1867–8	210,000 to 215,000 expected.

It thus appears that the beet-sugar manufacture, when once fostered into strength, is quite competent to hold its own against the tropical article, and even beat it in the contest. This would seem quite natural when it is considered that cane juice does not yield more than 10 or 12 per cent. of saccharine, that this must be expressed, boiled down, and finished for market in a very short space of time, rendering harvest labour costly, and that then there is a long, expensive, risky voyage to be encountered before the market is reached. A loss of 15 per cent. on the sugar and 20 per cent. on the molasses by drainage during the voyage must be counted on, as also the occasional bursting of a hogshead of sugar from fermentation, in which case there is total loss, as the scattered contents only sweeten the bilge-water in the vessel's hold.

Not in France only, but in the Continental States, beet-root-sugar making has become an established and growing industry, as the following statement will show:

QUANTITY OF BEET-SUGAR MADE IN GERMANY.

	Tons.
1864–5	170,000
1865–6	185,000
1866–7	200,000
1867–8 estimated at	165,000
AUSTRIA.	
1864–5	85,000
1865–6	70,000
1866–7	90,000
1867–8	95,000

Even in Russia the business is gaining a foothold. So long ago as 1856–7 nearly 7000 tons were made in that country. Returns of a more recent date are not given, but the manufacture of beet-sugar is constantly increasing; new and extensive works are springing up in every part of the country; and nearly enough is now produced to supply the whole population. In these countries the cultivation of beets has not interfered with any other branch of husbandry. No fewer cattle and no less wheat are raised than formerly.—In fact, wherever this branch of industry has been introduced the agriculturists have become wealthy.

The authority we are quoting strongly maintains that no reason exists why this manufacture should not succeed as well in the United Kingdom as on the Continent. He contends that the question rests, in point of fact, wholly with the agriculturists, whether it would pay them—not as well as wheat, for it must not for a moment be supposed that the cultivation of the sugar-beet would supersede that of wheat—but whether selling the roots would pay them as well as consuming them on the farm, or as growing common mangolds or turnips for the purpose. This question is pretty fully discussed, and the conclusion arrived at that it is for the farmer's interest to raise beets for the sugar market; that it will pay him as well if not better than the present system of root-growing and stock-feeding; that instead of impoverishing, it will enrich the soil, while it affords a living profit and something beyond; and that by feeding the residuum of the roots *after* the juice has been extracted, he can, with the addition of a portion of artificial food, fatten more stock than he now does. The last consideration adduced appears to be one of much importance. Beet pulp is about 30 per cent. of the entire weight, so that nearly one-third of the beet crop is available for feeding purposes after the juice has been taken out of it, and all this, be it remembered, or very nearly all of it, is solid food, and contains a small percentage of saccharine, it being found impossible to extract it all. On the Continent the sale of the residue is a regular part of the business of the manufacturer, though in some of the large establishments it is consumed on the premises, animals being bought and kept for the purpose.

If the above reasonings and conclusions are correct, and we see no reason to dispute them, they appear to show that the manufacture of beet-sugar is quite practicable, and tolerably sure to be remunerative in Britain; and if in Britain, the question very naturally arises, why not in Canada? The beet flourishes well in this country, and we believe is by no means deficient in the saccharine property, though we are not aware how far this point has been settled by chemical analysis. Until the appearance of the paper under notice, we did not know to what causes the failure of beet-sugar making in England was to be attributed. If the chief cause has been the West India monopoly and repressive taxation, of course it puts the questions of practicability and profit in a new light. We should greatly like to see this matter brought to a practical test. Of course this would involve the hazarding of some private or public capital; but success would open a new and important line of business that could not fail to be of great benefit to the public, while failure would set at rest a much agitated question, which only actual experiment can decide.

Value of a Railroad to the Farmer.

In several parts of the Dominion of Canada, railroads are being projected, and the agricultural communities through which they pass are asked to tax themselves towards the construction of such railways. People in general are averse to being taxed. They shrink from it with instinctive dislike, and deem that line of policy wise which keeps taxation down to the minimum point. But it is possible to indulge a short-sighted and unprofitable economy. We are by no means in favour of reckless railway building, nor do we counsel every farmer to try and get an iron track close to his own door. But the advantages of near access to market and cheap transportation of grain are very great. They benefit the farmer's pocket more than those who have only given the subject a cursory consideration are apt to think. The following, from an American journal, puts the subject in a striking, and as we believe, correct and truthful light:—

It is proper to bear in mind that the figures here given present only one of the many advantages that railroads bring. To haul 40 bushels of corn 50 miles on waggon would cost at least $12 for team, driver and expenses. A railroad would transport it for $1 at most. Allowing an average of 40 bushels per acre, the crop would be worth $8 more per acre, or 8 per cent. on $100. As the relative advantage is about the same for other crops, it is clear that a railroad passing through a town would add $100 per acre to the value of the farms. A town 10 miles square contains 64,000 acres. An increase of $100 per acre is equal to $6,400,000, or enough to build 200 miles of railroad, even if it cost $32,000 per mile. But 200 miles of road would extend through 20 towns 10 miles square, and cost $10 per acre, if taxed upon the land. These figures are given merely as an illustration. If the farmers had taxed themselves to build all the railroads in the country, and given them away to any companies that would stock and run them, the present increased value of their lands would have well repaid all the outlay.

JOURNAL OF THE FARM.—In place of the *Culturist*, one of our American exchanges which has been discontinued, we now receive the *Journal of the Farm*, a paper published in Philadelphia by Baugh and Sons. Of course, as we should all expect, one of the objects of this journal is to advocate the claims of the superphosphate manufactured by the publishers; but there is besides a large amount of valuable information relating to the garden, the farm, and rural affairs generally, and a due portion of its pages is set apart for household and fireside reading.

DIEHL WHEAT.—We direct attention to the advertisement of Mr. Lewis Springer in the present issue. We have before us a sample of the wheat which he has for sale, and have pleasure in stating that it is of excellent quality, sound, plump, and even. We receive favourable reports of this variety of wheat in many localities, though some parties have expressed their disappointment in regard to its merits. Mr. Springer says he has now grown the Diehl wheat for three seasons, the first time, however, only in very small quantity, in order to raise the seed. Last season he raised forty-four bushels to the acre, all free from midge. This season he expects to thresh out not less than forty bushels to the acre; and the grain is still free from midge. The soil of his farm, in Barton, near Hamilton, is a sandy loam. We recommend farmers on similar land to make a trial of this promising variety. It should be sown during the first fortnight in September.

Agricultural Intelligence.

British Agricultural Gossip.

BEDFORDSHIRE SHOW—WOBURN ABBEY—MESSRS. HOWARD—AGRICULTURAL MACHINERY—MR. MECHI—WEATHER AND CROPS.

To the Editor of THE CANADA FARMER:

SIR,—During the last few weeks I have been over portions of the counties of Middlesex, Hertford, Bedford, Cambridge, Suffolk, and Essex, have attended several markets and shows, and have otherwise had much personal intercourse with different parties connected with the landed interest. I have been invariably met by all classes in a kind and courteous spirit, and the being known as a Canadian has more than once enabled me to visit museums and other places of public interest, when the strict application of their regulations would have shut me out. I tell the people that in becoming a Canadian I am not one whit the less an Englishman, and that while our people love and cherish their native or adopted home, they feel proud of the old country, and are fully sensible of the honour and advantages of a continued connection with it. The doctrine that it is the duty and interest of the mother country to transport her surplus labour and capital to her colonies, where it will fructify and increase the strength and wealth of the empire, is certainly not unacceptable to the rural population, and in Lancashire even I have met with several instances of its recognition. The truth is, only the merest fraction of the British people can be considered in any sense or degree anti-colonial; "ships, colonies and commerce" is old England's motto and guiding star yet, and will continue to be so while sound statesmanship continues in the future, as it has in the past, to guide the helm.

The limits of a letter will only admit of a few allusions to such matters that have come under my observation as may possess some degree of interest to your readers, and here I may just remark that the site chosen for the Bedfordshire Agricultural Show this year, was the most beautiful, and comfortable for the cattle, that I have yet seen on either side of the Atlantic. The fine old park of Luton was granted for the purpose, and both visitors and stock felt truly grateful for the cool shade of these gigantic and symmetrical trees, such as form the characteristic beauty of English park scenery, during one of the hottest days I ever experienced. The show itself offered but few occasions for comment. I felt rather disappointed in its extent; many of our local shows in Canada exceed it in that respect. The quality, however, was generally very good, yielding therefore a *high average*, which I find to be now-a-days the ordinary condition of British exhibitions. I well remember the time when it was not so; a fact which should encourage Canadians to follow in this matter—and we may do so beneficially in others—the example of the parent State. The cattle were all either pure short-horns, or very largely mixed with strains of that blood. Mr. Charles Howard, of Beddenham, had some very fine specimens, and also Oxford Down sheep, a breed much cultivated and appreciated in this section. In most of the flocks bred for the butchers a mixture of Down blood of some variety, either with Leicesters or Lincolns, is quite apparent; but crosses are seldom bred from. The new Lincoln is decidedly making progress in many places, while in others the Leicester or Cotswold has a strong hold. The cart horses at the show I consider too heavy, at least for Canada, and even the lighter soils of England. But the modern Suffolk Punch, (not wholly unknown in Canada), seems to combine many excellencies as a draught horse—he has often good action, with decidedly a large amount of muscle compressed into a small compact compass. The dinners which inevitably form sequels to English shows, are not among the least of their attractions; good humour, and sometimes good speeches, containing useful and reliable information as the results of experience, characterize the proceedings. I must not omit to mention that in connection with Luton Park, a farm of a thousand acres, is the most complete and extensive farmery, probably, in the world. I have neither time nor space to enter on a full description of it here, but having got full particulars and a ground plan of the whole, I hope on my return to prepare a paper on the subject. The changes introduced of late years into agricultural architecture are certainly no less striking than those belonging strictly to the art of culture.

I had the pleasure of spending a day or two with my old highly esteemed friend, Mr. Thomas Bennott, land steward of the Duke of Bedford, Woburn Abbey. I wish I could give your readers an idea of the management of this princely domain. Park, (3000 acres within a high wall,) gardens, conservatories, with a mansion reaching back into remote antiquity, all on a magnificent scale, with numerous and extensive farms, villages, and churches, comprising the elements of a happy, orderly and well-to-do moral community. Whatever objections may apply to some large estates on account of bad management, have certainly no relevancy to Woburn. The Dukes of Bedford have for centuries been honourably distinguished, not only for sound statesmanship, but for an intelligent and munificent encouragement to agriculture and horticulture in all their branches; and some of the most happy and instructive gatherings to promote these objects have been held at this distinguished place. For many years past a thorough system of draining has been progressively carried out on this estate; a large number of improved farmeries and cottages erected, and every encouragement given to the improvement of agriculture, including both the farmer, mechanic and labourer. The old herd of Hereford cattle is still kept up in the park, and this breed continues to occupy a high position as beef cattle.

I have also had the gratification of inspecting the agricultural works of Messrs. James and Frederick Howard, of Bedford, and of the Messrs. Ransome and Simes, of Ipswich. These are the most extensive and complete of any, perhaps, in the world, and having jotted down many particulars, I propose, when I return, to give your readers a pretty full account of them. It is workshops like these that impress the conviction on the mind, not to be doubted or misunderstood, that agriculture is indeed rapidly becoming a science, and can no longer be looked down upon as a mere empirical art. The Messrs. Howard have a farm of some 600 acres near their works, and certainly their wheat, after steam culture, looked much more luxuriant than that of their neighbours after the ordinary manner. The fact is, both chemical and mechanical science are largely contributing their valuable aid to British agriculture, which owes probably as much of its modern improvements to the latter as to the former. I had time only for a mere glance at the farm of Mr. Charles Howard, a brother of the manufacturers, but that glance was sufficient to convince me that he occupies a high position among his countrymen. His extensive herd of Shorthorns contains some animals not to be excelled anywhere, and as to his Oxford Downs, they have already more than a British reputation. Mr. Chas. Howard is regarded as one of the most intelligent and successful English breeders.

On my return to London, through Essex, I spent a very pleasant day with Mr. Mechi at Tiptree Hall, near Kelvedon. It was twenty-four years since I visited this wide-famed farm, soon after Mr. Mechi had commenced his improvements. What a change did I witness! literally a "wilderness made to blossom as the rose." Here skill and capital have converted a formerly barren heath into a highly productive farm. It has been the work of enlightened perseverance, and the application of capital to a degree which many sober-minded people regarded, if not as reckless, still decidedly unprofitable. Mr. Mechi shows by his accounts that it has been far otherwise, and that he has reaped, at least, a fair profit. I can not now go into details, which I shall be happy to do at some future opportunity. I found Mr. Mechi as frank and generous as ever, although near a quarter of a century has elapsed since I last saw him; and he has suffered heavy losses during the recent commercial panic. I looked over seventy-five acres of wheat, drilled with one bushel of seed per acre, with a prospect of more than fifty-five bushels. A portion was dibbled with a peck per acre, and the crop, though a few days later in ripeness, will probably prove as large as the former; a fact clearly showing that superior cultivation requires less seed.

The agricultural prospects here are not very bright. The weather continues extremely hot and dry. Hay not half a crop, and spring grain generally must be very deficient. Swedes will be an entire failure, and mangels in some places nearly as bad. Keep for stock is very deficient, and should the drought continue for a few weeks longer (and there are no signs of a change at present) the consequences will be disastrous, for in many places there will be neither food nor water for sheep and cattle. Fortunately there is a considerable amount of old hay left throughout the country. Wheat is decidedly the best crop, and in the best, moist soils, will be heavy, but the yield generally will be affected from want of rain. Hops promise an abundant crop, but they have suffered of late from the same cause. The harvest will be unprecedentedly early; peas, barley and oats, on the forward soils, are already cut. It is said that so intense a drought has not been experienced in England and portions of the continent since 1818. I hear that in Canada the copious rains of May and part of June have been succeeded by warm sunshine, so that abundant crops may be reasonably anticipated; a result most devoutly to be desired. I am off to the show of the Royal at Leicester in the morning, and will send you some account of it the earliest opportunity.

GEO. BUCKLAND.

Hedge-Plant Growers' Convention

A convention of hedge-plant growers was held at Bloomington, Ill., June 25, 1868, for the purpose of organizing an association, and in various ways advancing the interests of their business. A Constitution and set of By-Laws were adopted, to the effect that the organization be called the "North-Western Hedge-Plant Growers' Association;" its officers to be a President, not less than five Vice-Presidents (who shall be *ex officio* Corresponding Secretaries), a Secretary and Treasurer, all to be elected annually. Any person actually engaged in growing hedge-plants may become a member for one year on payment to the Treasurer of $1 admission fee.

Capt. W. H. Mann, of Gilman, Illinois, was unanimously elected President, and on taking the Chair said he thanked the Association for this honor; that the fact that the hedge-growing interest of the North-west now involved millions of capital showed the necessity for this organization, and he bespoke for it a future of usefulness, both to the growers of plants and to the farmers who must depend upon them for fencing material. He had been over twenty years a hedge-plant grower, and he saw men now making mistakes that caused him serious losses ten or fifteen years ago. The discussions of this Association would prevent such errors by its members hereafter.

The following Vice-Presidents were then chosen: G. N. Parker, Kankakee, Illinois; S. W. Lamson, State Centre, Iowa; F. Safford, Marengo, Illinois; D. W. Norris, Paxton, Illinois; M. Neal, Bloomington, Illinois.

H. N. Pearse, of Bloomington, was elected Secretary and Treasurer.

Official Reports of the Condition of the Crops in the United States.

THE following is from the Department of Agriculture:—Wheat—an increase of the average is observed, in a greater or less degree, in nearly every State. The Eastern States show no increase of fall sowing, except four per cent. in Vermont, but the enlarged area of spring crops, which are the main home reliance for bread supplies, is very marked in Maine and Vermont; the former showing an advance of twenty-six per cent., the latter of sixteen per cent. New York indicates five per cent. increase in the fall average, with no change in spring wheat. In Delaware a reduction of seven per cent. appears, while an increase of nine per cent. is shown in Maryland, eleven in Virginia, seventeen in North Carolina and South Carolina, eleven in Georgia, ten in Alabama, fifty-three in Mississippi, thirty-one in Arkansas, forty in Tennessee, and thirty in West Virginia. The increased acreage in the West, where the great bulk of the wheat crop of the country is grown, is of peculiar significance of the State in which winter wheat is mostly cultivated. Ohio presents an increase of five per cent. of that variety; Indiana, ten per cent.; and Michigan seventeen per cent. In portions of these States an unusual effort has been made to enlarge the area by spring sowing, showing respectively eleven, fourteen, and six per cent. increase in the States, which rely mainly upon spring-sown crops. Illinois indicates an increase in that variety of twelve per cent.; Wisconsin, four per cent.; Minnesota, twenty-three per cent.; Iowa, twelve per cent.

An analysis of these averages will show a general average of about eleven per cent. increase in the fall sowing, and twenty-eight per cent. in the breadth of spring wheat, altogether an increase of eighteen to twenty per cent. in the aggregate number of acres in wheat. The reports of the condition for June are generally very favourable. A promise of the best crop ever known is held out by local correspondents in many places, particularly west of the Mississippi. Winter grain on new land is looking very well; but there is a large proportion of wheat sown on old, worn-out land, poorly managed, and a very light crop will be the result. Barley—Kentucky, Missouri, and Minnesota have given increased attention to barley, but most of the other States are either slightly below the average or barely up to it. The fall sowing especially was deficient in most of the Western States, but the deficiency was generally made up by extra exertions in preparing for a spring crop. Oats—An increased area in oats, averaging seven per cent. for the entire country, is reported. Clover—It is worthy of note that every State in the Union reports an increased attention to the clover crop, with the single reduction of two per cent. in New Hampshire, and the prospect for a good crop is almost universal, Kentucky only being marked a trifle below the average. Pastures—Delaware and Wisconsin are the only States failing to give increased averages. Fruits—The appearance of apple blossoms was unusually late on the Atlantic coast, opening very fully; at last they were injured in many places by storms and unpropitious weather. In the central portion of the West, the bloom of the orchards was not generally abundant. It was small on the Atlantic coast between New York and Georgia. With the single exception of apples west of the Mississippi it was large, and in some localities excessive.

Royal Agricultural Society's Show.—This world-renowned agricultural gathering was held this year in Leicester, and was one of the largest exhibitions ever collected together in England. The show and trial of implements was one of its most prominent features. This is the twenty-ninth show of the Society. It commenced on July the 8th, and was not closed up to the date of our latest British exchanges, July 15th. In the expectation of receiving a report of this interesting meeting from our esteemed correspondent Professor Buckland, now in England, we defer for the present any further notice of the occasion.

☞The hay crop in England is mostly harvested. The crop turns out to be much lighter than was at one time anticipated, in consequence of the exceedingly dry weather during the last few weeks. It was expected that reaping would commence some time about the middle of July. Alderman Mechi, the celebrated farmer and owner of the model farm, has written a letter to the London *Times*, in which he prophecies that the yield of wheat will be exceedingly large, more especially on heavy clay lands, which the late dry, warm weather has exactly suited. Another writer remarks that the hottest, driest seasons have always been noted for heavy crops in England. The summers of 1826 and 1854 were exceedingly warm, and the crops of those years were the finest known for fifty years past.

Agricultural Meeting.—The Orillia *Expositor* says:—A meeting of the Directors of the Muskoka Union of Townships Agricultural Society was held at Bracebridge, on the 16th inst., when the Secretary read a draft of rules, which were adopted. Settlers in Muskoka would do well to bear in mind that for this year provision has been made in the rules entitling those who may join before the 1st of September to all the benefits of membership. This liberality should be rewarded by a large accession to the list of members. The meeting adjourned to meet at Gravenhurst, at ten o'clock, on Thursday, the 30th July, for the purpose of enrolling members, and to afford an opportunity of explaining the objects of the Society.

Oxford Wool.—The Woodstock *Sentinel* says:—The wool market has closed for the season. The quantity of wool purchased this season in Woodstock falls short of that of last year, by the several purchasers. This year, Thomas Oliver, Esq., was the principal buyer, and has shipped a quantity equal to the one-half of all that was purchased. Last year Mr. Oliver shipped 23,000 lbs—this year he has shipped 37,000, that is 14,000 lbs in excess of his shipment last year. The average price of Mr. Oliver's shipment is 25¼ cents per pound.

Traction Engine.—The Traction Engine lately imported by Mr. Sutherland Taylor, having been successfully tested as to its capacity for drawing heavy loads on our ordinary roads, and surmounting the difficulties of pretty steep inclines, has been sold by the importer to an enterprising Canadian firm. The purchasers are Messrs. John Bruce and James Waterson, of Walkerton. They intend to place the engine on the route between Walkerton and Guelph, to accommodate the growing and already extensive trade of that locality. Their enterprise in an entirely new branch of the carrying trade should ensure for them every encouragement.

Gambling in Cereals.—The recent gambling operations in wheat in Chicago and Milwaukee, in which merchants of the latter city, by their superior sentences, came out ahead of the Chicago schemers, making a considerable margin by the operations, drew the following from the recent Convention of North-Western millers at Chicago:—

"*Resolved*, That we deprecate all gambling operations in wheat and flour, all corners and efforts at cornering, as unjust to the manufacturer by disturbing the value of the commodity, and as oppressive to the labouring man, who is compelled to bear the burden of the high prices of the staff of life, and that such conspiracies against the interest of the poor and labouring man are deserving of universal reprimand."

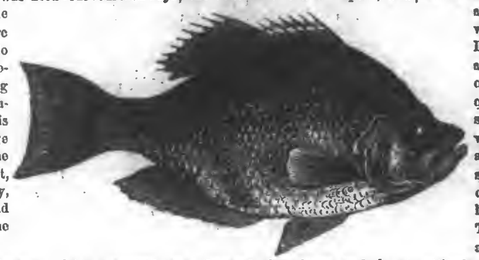
Canadian Natural History.

Rock Bass.

(*Centrarchus Æneus.*)

Having already noticed and illustrated the larger species of the [Perch family, we have selected for our present illustration a very common and much smaller species, well known to all the frequenters of our lakes, namely, the Rock Bass. We are indebted to that excellent authority "Frank Forester's Fish and Fishing" for the following description.

The general colour of this fish is a dark coppery bronze above, with green reflections, the head above dark green, gill covers metallic green, with a dark spot on the posterior margin of the operculum. The sides golden copper, with several rows of oblong dark spots below the lateral line. The fins bluish green. The body is compressed, short, and broad. The dorsal outline gibbous; the lateral line following the curve of the back. Head large, with a concave outline. Gill-covers scaly; the operculum with rudiments of a double angle on the posterior margin; lower jaw somewhat the longest. Teeth small, conical, recurved, on the maxillaries, intermaxillaries, vomer, palatines, and pharyngeals. The dorsal fin has eleven spinous, and twelve soft rays; the pectoral fourteen rays; the ventrals one weak spine, and



five branched rays; the anal, six spinous and eleven soft rays; the caudal, with rounded tips, has seventeen rays.

The Rock Bass is a good flavoured fish, and affords excellent sport to the angler. In some places it is so abundant, however, as hardly to afford sport in its capture. It is taken off the wharfs and docks on all the lake waters from Kingston to Lake Superior. It rarely exceeds a pound in weight.

There is another species of Perch famous on Lake Ontario, and often confounded with the Black Bass, but most probably distinct, namely, the Oswego Bass. Of this fish a writer quoted in the work to which we have already alluded, says:—"The Oswego and Black Bass bear so strong a resemblance to each other, that not one fisherman in ten knows them apart. In form, colour, weight, and habits, the two are almost identical; and yet their differences, though minute, are striking and essential. An Oswego Bass, when placed by a Black Bass of the same size, is readily distinguished by his more forked tail, his greater thickness of shoulder, his coarser scales, and, above all, by his mouth, which, when open, is nearly twice as large as that of the Black Bass. In Lake Ontario, the Oswego Bass is abundant, and the Black Bass comparatively rare. In Lake Erie the Black Bass greatly predominates; and it may be doubted whether the Oswegonian—like certain citizens of the Ontario shore—is not an interloper in our waters, who has found his way to us from below, through some canal. However this may be, he is certainly right welcome."

The small species, the subject of the accompanying illustration, needs no particular skill to capture, and scarcely gives sufficient sport for the experienced angler, but the larger kinds furnish excellent angling. The Black Bass, it is said, will seldom take the hook in the rivers until June. He is always good eating but is in best condition in August. An enthusiastic disciple of Isaac Walton gives the following account of his experience with this fish in Lake St George:

"This is a game fish, affording the angler the very highest enjoyment. These fish are taken in various ways. When collected on their feeding grounds, in August and the succeeding fall months, they are sometimes taken in considerable number. The usual mode of angling for them at this time, is either with or without a float and with live bait—a small fish taken for the purpose, along the lake shores or in brooks. They are exceedingly strong and active—qualities which delight the angler. When first hooked, they run very wild, and almost invariably rise to the surface, and leap one, two, and even three feet in the air, shaking the head violently, evidently with a view to dislodge the fatal hook. Frequently, while making their runs, they will suddenly turn and come with all their power directly towards their enemy, and by thus slacking the line, will succeed in shaking the hook loose: this often happens with inexperienced fishermen, but more rarely with the angler who holds a good reel and winds rapidly. The most beautiful mode of angling for them known, is trolling, either with live bait or an artificial fly of large size and gay appearance. The writer has succeeded remarkably well with a fly made on a large-sized Limerick hook, such as are used for Striped Bass when fishing with crab bait. The fly is made as follows: Body of a peacock feather, wings of bright scarlet kerseymere and white pigeon feathers; or, the feather stripped from a white goose-quill, and wound round like the hackle, and surmounted with thin strips of scarlet for wings. For trolling pleasantly and comfortably, the angler should provide a moveable seat, which he can place across the gunwale of his boat, in order that he may sit with his back to the oarsman, and facing the stern. Thus he will have full command of his rod and line, and not be sitting in the cramping attitude which the lowness of the seats would cause. He should reel off fifty to sixty, or even one hundred or more feet of line, and in going over shallow reefs of seven or eight feet depth, two hundred feet, as the fish feeding on the reefs usually dart aside as the boat passes, and do not return immediately to their harboring spot, which is one reason why those who do not use the reel are not as successful as those who employ it. After a few moments they glide back to their favorite spot, and as the fly comes along, dart at and seize it. A strong tug is felt by the angler, who has only to draw gently, and his prey is fastened. The oaraman rests on his oars, to give the angler full command of his line. The noble fish, after one or two runs to right and left, suddenly rises and makes his splendid leap, and plunging, again seeks the bottom, again rises, and then tries his last experiment of dashing right towards the boat. He struggles long and vigorously, but his strength is at last exhausted, and you trail your unresisting captive to the landing net."

The same fish is taken in great numbers, and of unrivalled excellence, in the St. Lawrence, among the Thousand Islands.

Acclimation of Birds.—We translate the following from the *Courier du Canada*, published in Quebec:—"M. W. Rhodes, of this city, has recently received from Europe twenty-five couples of insectivorous birds, known in Ireland under the name of common sparrows, which are destined to be acclimated in this country. All that M. Rhodes demands for his little *protégés* is that they shall have the same protection as that provided by law for the various species of insectivorous birds which are indigenous to the country."

Stuffing Birds.

To the Editor of The Canada Farmer:

Sir,—For the information of those of your readers who may wish further instruction in the art of Taxidermy, I will now proceed to give directions for stuffing birds; and will take just as an example the Pigeon, for skinning which instructions were given in a former article. Let us suppose the bird just skinned with the skull attached. I will treat on mounting dried skins some other time. The first thing is to replace the skull after it has been well anointed with the arsenical soap and inside with solution of corrosive sublimate. The bird is now laid on a table with the head towards the left hand, and the legs and wings adjusted to their proper situation. A pound weight is laid on the tail, while the feathers of the margins of the opening are raised by the fore-finger and thumb of the left hand to prevent their being soiled. The inside of the neck is now coated with arsenical soap; flax, tow, or cotton is then stuffed into it, but not too tightly. The back and rump are next anointed, and the body should be partly stuffed with tow, putting in about one-third the quantity that would be required to fill up the whole carcass. The simplest way to form the carcass is to take a cork from a wine bottle, say 1½ inch long by one inch in diameter; put a straight piece of annealed wire the whole length of the bird, from head to tail, then bend a piece of wire the shape of the letter V, and push it through the cork from the end which you intend for the head, leaving the projecting ends long enough to reach beyond the longest toes. You may now wind the cork with tow, or cotton, forming an artificial carcass. Then you put the wire through the neck, running through the skull; then push the wires through the legs, that is between the skin and the bone on the back side, and through the soles of the feet. Lastly, thrust the tail-bearer, or wire to support the tail, into its place; then finish stuffing. The skin is now brought together and sewed up, taking the greatest care to separate the feathers at every stitch. The orbits of the eyes are next finished, by inserting a little chopped cotton, attention being paid to round the eyelids properly. The glass eyes are now inserted, taking care to insert them properly under the eyelids. But before fixing the eyes, a little calcareous cement must be used to prevent them from coming out. The stuffing of the bird being now finished, the next thing is to place it on a piece of plank, by boring two holes for the reception of the wires which have been allowed to protrude from the soles of the feet for fixing the bird. These, of course, are pierced in such a situation as is necessary for the attitude or position of the legs. The wires are put through these holes and twisted so as to secure the bird in its position. The attitude of the bird will of course depend upon the fancy and taste of the operator, and ought to be in conformity with the habits of the bird in a living state. The leg wires are to be bent something like the letter Z, as in the skeleton. Give the neck and head its proper shape; smooth all the feathers down, and set it in some airy place to dry, and then your work is done.

The following is the composition of the

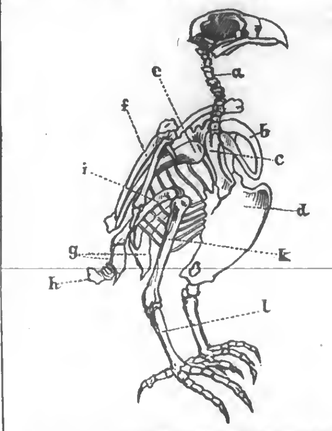
ARSENICAL SOAP.

Arsenic in powder	2 pounds.
Camphor	5 ounces.
White Soap	2 pounds.
Salt of Tartar	12 ounces.
Powdered Lime	4 ounces.

The soap must be cut in small and very thin slices, put into a crucible with a small quantity of water, and held over a gentle fire, and frequently stirred with a wooden stick or spatula. When it is properly melted, the powdered lime and salt of tartar must be added and thoroughly mixed. It must now be taken off the fire, the arsenic added gently and stirred. The camphor must then be added and stirred; but it must first be reduced to a powder by beating it in a mortar, with the addition of a little spirits of wine. This must be added while off the fire. It may then be held over the fire to assist in making the ingredients incorporate properly, but must not be much heated, as the camphor will very rapidly escape. It may now be poured into glazed earthen pots, and allowed to cool, after which a piece of paper should

be placed over the top; and over this some sheep leather; then set aside for use. The composition is about the thickness of flour paste. When it is necessary to use the soap put as much as will answer the purpose into a preserve pot, and an equal proportion of water. This is applied to the skin or feathers with a bristle brush.

N. B.—It should be kept as close as possible, and used with caution, as it is a deadly poison.



As a guide to the correct anatomy of a bird, which should always be borne in mind in forming the carcass and fixing the attitude, the accompanying outline of the skeleton of a falcon is given, with lettered references. *a, cervical vertebræ; b, clavicle; c, coracoid* bone—an appendage to the clavicle or collar-bone peculiar to birds; *d, sternum* or breast bone; *e, humerus; f, ulna; g,* portions of the *Ilium* or hip bones; *h, sacrum,* and *os coxygis; i, femur,* or thigh-bone; *k, tibia; l, tarsus.*

A. B. B.

Entomology.

Entomological Society of Canada.

The Annual General Meeting of this Society was held, by invitation of the London Branch, at their rooms in the City Hall, London, Ont., on the 7th of July; the President, Prof. Croft, of Toronto, occupying the chair. The following members were present: Messrs. Croft, Saugster, Clementi, Bethune, and Osler, from the Parent Society; Messrs. Saunders, Reed, Barker, Griffiths, Puddicombe, Denton, Chapman, Waterman and Simpson, of the London Branch.

The minutes of the last meeting, the reports of the Quebec and Toronto Branches, and the Financial Report were read and adopted. After the reading of letters of apology from various members, and other communications, the meeting proceeded to the election of officers for the ensuing year, with the following result:

President—Prof. Croft, D.C.L., Toronto University.

Vice-Presidents—Johnson Pettit, Esq., Grimsby; Wm. Saunders, Esq., London.

Ex officio Vice-Presidents—Rev. O. Brunet, President Quebec Branch; J. M. Denton, Esq., President London Branch.

Secretary-Treasurer—Rev. C. J. S. Bethune, M.A., Credit, Ont.

Curator—W. H. Ellis, Esq., M.A., Toronto.

Council—G. J. Bowles, Esq., Secretary Quebec Branch; E. Baynes Reed, Esq., Secretary London Branch; J. H. Sangster, Esq., M.D., Normal School, Toronto.

A number of eminent Entomologists in the United States were nominated for election at the next meeting as Honorary Members of the Society; the number of such members is limited by the Constitution to twenty-five. A discussion then took place respecting the publication by the Society of a small periodical to contain the transactions of the Society and serve as a medium of intercommunication among Entomologists in this country. It was finally unanimously resolved that a periodical, to be entitled the "Canadian Entomologist," should be issued by the Society, under the editorial management of the Secretary, the Rev. C. J. S. Bethune, and be distributed gratuitously to members of the Society, and at the rate of fifty cents per volume of twelve numbers to non-members.

After a couple of hours adjournment the meeting re-assembled at 8 o'clock p.m., and proceeded to the examination, comparison, and discussion of Longicorn Coleoptera (*Cerambycidæ*), or wood-borers. Large and interesting collections of this family of insects were exhibited by Messrs. Saunders, Croft, Bethune, Reed, Sangster, and Clementi; among them were to be seen specimens of nearly all the 127 species enumerated in the Society's printed list, and also a few more species new to Canada, as well as some foreign specimens from the United States and Mexico. A few new species of Lepidoptera were also exhibited, while on the table were some powerful microscopes, and a number of handsome works on Entomology, including an unpublished volume of plates by Mr. Townsend Glover, all of which attracted a great deal of attention. Notwithstanding the intense heat, which the members almost vainly endeavoured to modify with ices and other cooling refreshments, a very pleasant and instructive evening was spent.

The following day, Wednesday, July 8th, was devoted to a very pleasant Entomological Field-day and Pic-Nic. The heat, though still great, was tempered by a most refreshing thunder storm during the previous night, and nature looked all green and fresh and bright. After a few miles drive into the country, the chosen spot was reached, and the members betook themselves to the woods, fields, and river side, in quest of their tiny game; two or three

hours were spent in the capture of various orders of insects, and a fair measure of success was attained by all, many rare and interesting specimens being taken. At mid-day all re-assembled under a shady grove of wild cherry-trees, and did full justice to an excellent lunch provided by our hospitable London friends. The rest of the afternoon was devoted to more captures, bathing, and hunting, while some, unwilling to encounter again the blazing heat of the sun, enjoyed a quiet pipe and chat under the shady trees. Before returning to London, photographs were taken by Mr. Griffiths of all the members in a group, with their nets and other apparatus, as a memento of this first gathering under the new constitution. In the evening the Society re-assembled at the house of Mr. Saunders, the Curator of the London Branch, and spent some pleasant hours in the examination of his large and varied collections, and the use of the microscope.

The next day, Thursday, a few of the members paid a visit to the strange natural ponds, a few miles south of London, and collected a number of rare and beautiful insects and plants. This closed a most agreeable reunion of the members of the Society, which will long be remembered by all who took part in it; the members from a distance all expressing themselves highly delighted with the unbounded hospitality and kindness of their London friends.

Knocking the Curculio.

It is becoming generally admitted that jarring down the curculio on sheets extended for the purpose, is on the whole the most effectual and certain of all remedies. There are other modes or auxiliaries which are useful, and which sometimes of themselves are sufficient to give good crops. Allowing a herd of swine, for example, to run among the trees, from the moment the punctured fruit begins to drop until it approaches maturity, these animals will eat every young larva, and generally save the crop the following year. The trouble, however, with most persons is, that they do not give it a complete trial. A single year's experiment obviously will not answer. It must be continued without intermission for an indefinite period. We knew a cultivator who had heavy crops of plums for seventeen years in succession—his swine for these seventeen years, without a season's interruption, being allowed the run of the yard.

But where the insects are abundant, no other method may answer but the immediate, direct and certain assault of jarring and pinching.

We published, two years ago, the result of a perfectly successful experiment on an orchard of seventy trees, which became heavily loaded throughout, although in previous years we had not had a peck of fruit when no care had been taken.

Although it is now some forty years since the late David Thomas first introduced this efficient mode, and proved at the time the inefficiency of mere shaking the trees, and the importance of a sudden sharp jar, we find all over the country that this difference is still generally unappreciated. It is common to cover the mallet or bar of wood with cloth and cotton batting in order to prevent the bruising of the bark. The soft taps thus given are quite inefficient to bring down all the insects. Let any one try the experiment with a tree fully infested; shake it first, and he may possibly get two or three curculios; jar it next with the soft cushion already described, and he may get two or three more, but strike the tree with the back of an axe, which will impart a sudden and sharp jar throughout all the branches, and not a Turk will retain his hold. To prevent the bruising of the bark by these sharp blows, we have formerly adopted the practice of sawing off a small limb, leaving a stub an inch long, against which the axe or hammer might be struck without injury to the tree. But we have recently discovered an easier, better and more efficient mode. It was introduced by our correspondent E. W. Herendeen of Macedon, and we have adopted it with entire success. It consists in driving an iron spike into each tree nearly up to the head, at such place as will most effectually jar the whole tree. A stroke on the head of this spike will be more sudden and more certain to dislodge the curculios, than anything else that has been tried. The size of these spikes may vary with the size of the tree. For those of medium growth, what is commonly known as a twenty-penny cut nail, will be about right—first breaking off about an inch of the point before driving. For larger trees heavier spikes will be necessary—boring a small hole just before driving. Railway spikes might be inserted, against the heads of which very efficient blows may be given. No injury to the tree can result from their insertion, as no uncovered wound is made.—*Country Gentleman.*

Leaf-rolling Caterpillar on the Apple.

To the Editor of The Canada Farmer:

Sir,—You invite farmers to communicate anything that may be of interest. I am but a tyro in the science of Agriculture, and am willing always to be an enquirer rather than a teacher.

An acquaintance of mine called my attention a few days since to an enemy of the apple tree, of which I had no knowledge previously—a member of the caterpillar tribe snugly ensconced within a leaf of the tree, which was curled about it. Have you noticed it? and what is its name and habits?

JOHN Le BOUTILLIER.

Note by Ed. C. F.—The insect referred to is the larva of a moth belonging to the tribe *Tortricina*, or leaf-rollers, so called from the habits of the caterpillars. Without seeing specimens we cannot, of course, tell to what species to refer that noticed by our correspondent on the apple; it may, however, be that named by Dr. Fitch the "Apple shoulder-striped Tortrix" (*Brachytænia Malana*).

Most observers of insects and their ways must have noticed the curious manner in which the edges of leaves are often rolled up by some small caterpillar, for the purpose of obtaining shelter and protection as well as food. Their mode of constructing this habitation is remarkable; first the little caterpillar fastens a number of silken threads from one side of the leaf to the other; then it draws these threads together till the opposite edge of the leaf is curled over, when it fastens it down with more threads; should it discover that the larger ribs of the leaf will not readily bend, it gnaws them partially through, and thus cleverly effects its object. In this way a cylindrical tube or cone is made, in which the tiny architect spends its life and undergoes its transformations. A large number of species of this tribe are found in this country; one—the larva of a very pretty moth (*Desmia Maculalis*)—infests the grape-vine, and is often so numerous as to defoliate the vines in some parts of the Western States; another is plentiful on the leaves of the Bass-wood; while others may be found on various trees and shrubs. They may easily be destroyed by crushing the curled leaf in the hands.

The Three-lined Potato Beetle.

(*Lema trilineata*, Oliv.)

The following letter was addressed to Prof. Buckland, of the Bureau of Agriculture and Arts, Ontario, but in consequence of his absence in Europe, it has been sent to us with the writer's consent:

Dear Sir,—Accompanying this you will receive two bottles, one containing the bug—a true one, I think—of the largest kind of Aphis; also the slugs, (in the other bottle) produced from their eggs. These I gathered in Moore this morning, where they are infesting and destroying the potatoes. The bug appears on the top of the leaf, lays the eggs at the axil of the upper leaves, near the flower, and the slug, a slimy one, appears under the leaf and devours all the vegetable matter therein. I have recommended to let the slug appear, and then, with a broom, brush the slugs off; a very light touch makes them fall, and they die as soon as they touch the ground. I thought you might like to hear of this new pest, and so send you specimens. I will inform you of the final effect on the crops. I remain,

Yours truly,
W. P. VIDAL.

Sarnia, July 9th, 1868.

The specimens sent with the letter represented two stages in the life of the "Three-lined Potato Beetle"—the slugs being the larvæ of the beetles. Last year we gave a description and figure of the insect (C. F. Aug. 15th, 1867, p. 252), to which we beg to refer our readers. This devourer of potato leaves we have long known and observed in different parts of the country, but it has seldom proved very destructive; this year, however, we expect to hear a different account of its work, as in many places it is more numerous than we ever saw it before. We shall be anxious to learn from Mr. Vidal how far its depredations will have affected the yield of potatoes in the Township of Moore. The remedies that have been employed with the greatest success are dusting the larvæ with lime, ashes or soot; and brushing them off into a vessel and destroying them with hot water. Children might be advantageously employed in this work with but little expense.

The Privet Sphinx Caterpillar.—Mr. Brown, of the Louisa Street School, Toronto, sent us the other day a specimen of this large caterpillar. It is about three inches long, of a delicate pale green colour, with a series of whitish oblique stripes along the sides, and a sharp horn-like tail on the last segment. We tried to feed it on privet, lilac and other leaves, but it refused to eat, and on the 19th July turned into a chestnut-colored chysalis, about two inches long, with a short, thick tongue-case pressed close to the body. Next year, if all goes well, it will turn into a large ash-colored moth whose wings expand about five inches. It is unusual for these caterpillars to turn into the pupa state so early; their general period for transformation is about the end of August or beginning of September.

The Household.

Washing Made Easy

Mankind, and more especially womankind, have long been agreed that whoever should banish, or even mitigate the horrors of washing-day, should be assigned a high place among the benefactors of the human species. The aspirants for this honour have been very numerous, and their efforts have been worthy of more success than they have achieved. A legion of washing machines have been invented and brought into the market, but no one among them has operated satisfactorily. Various chemical preparations for taking out dirt without the tedious and fatiguing process of hand-rubbing have been tried and found wanting in some one or other of the elements of efficiency. That rude kitchen utensil the wash-board is the only apology for an assistant that woman can press into her service when the soiled linen of the family, heaps upon heaps, demands purification. A sorry helper it is at the best!

There is reason to think that a truly valuable discovery has been made, whereby the toils and sorrows of washing-day may be very greatly lessened. "Clark's Excelsior Washing Composition," a recently patented preparation, and said to be free from the objections that lie against other compounds of the kind, is winning golden opinions in many quarters, and comes before the public with most respectable certificates as to its capabilities. The patentee, Rev. W. W. Clark, a highly respectable Wesleyan Minister, is well known to us, and is too honourable and upright a man to sell a recipe for mere purposes of money-making. He simply asks for his "composition" a fair trial, and offers, if it does not give full satisfaction, to refund the money (one dollar) charged for the secret of its preparation. It is warranted perfectly free from everything injurious to hands, clothes, or health. Clothes require no rubbing, except it be very dirty collars and wristbands, which may be subjected to a little hand friction. All kinds of fabrics may be washed by it, as it neither injures texture nor unfixes colour. It will remove paint, grease and stains of all kinds. The components of this preparation are cheap—enough to wash thirty-two times for a family of eight or ten persons costing only from forty to fifty cents. Washboards are dispensed with, and a day's hard work reduced to the labour of a couple of hours at most. Besides a number of testimonials from individuals—among them several responsible chemists, who attest from actual trial the qualities of this washing composition—three well-known Provincial journals, the Toronto *Leader*, Guelph *Mercury*, and Ingersoll *News*, having tried it in their respective editorial families, give it the highest eulogy, the last named periodical pronouncing it "the best and greatest discovery of the age for washing purposes." This is good news for housekeepers, and laundresses generally. "Family rights," containing full directions for making and using the composition, may be obtained by remitting one dollar to Rev. W. Warner Clark, Guelph, Ont., or they may be purchased of that gentleman's agents, who are canvassing in various parts of the Province.

What Shall I Do?

By Mrs. Frances Dana Gage.

"What shall I do?" My boy, don't stand asking;
Take hold of something—whatever you can.
Don't turn aside for the toiling or tasking,
Idle, soft hands never yet made a man.

Grasp with a will whatever needs doing,
Still standing ready, when one work is done
Another to seize; and thus, still pursuing
In duty your course, find the victory won.

Do your best for to-day, trust God for to-morrow;
Don't be afraid of a jest or a sneer;
Be cheerful and hopeful, and no trouble borrow;
Keep the heart true, and the head cool and clear.

If you can climb to the top without falling,
Do it. If not, go as high as you can.
Man is not honored by business or calling,
Business and calling are honored by man.

—*Herald of Health.*

☞ Quills are things that are sometimes taken from the pinions of one goose to spread the opinions of another.

Improvement in Cistern Pipes:—An improvement in the arrangement of cistern pipes has been invented and patented by Mr. W. H. Rodden, of Toronto. The peculiarity of the system consists in such a disposition of the overflow and withdrawing pipes that the pure water from the top is pumped out for use, while the overflow is drawn from the bottom of the cistern, where, naturally, the sediment will collect and render the water less fit for use. The new arrangement is highly recommended by medical men. Mr. W. Hewitt is the Patentee's Agent for this city.

About Sun-strokes—Since sun-strokes have been so common, it may be well to give some hints concerning remedies for them. It is said that cold water should be immediately poured over the head of the person thus affected, and that mustard or other stimulants should be applied to the back of the neck, the wrists, knees, and soles of the feet. Of course these remedies should not preclude the calling of a physician in any case where the patient does not immediately rally. As a safeguard against sun-stroke it is well to have something more than the usual covering over the head on venturing into the rays of the hot sun—for instance, a handkerchief, or still better, green leaves in the hat, those of the common plantain being excellent, and frequently used.

Philosophy for the Ladies.—Pie Juice.—The time has now come for fruit-pies, and therefore for pie-juice; and as our readers strive at all points for the practical and useful combined, we intend to offer a suggestion for "the better arrangement" of pie-juice. Some people place an inverted cup in the pie, thinking this catches juice that would otherwise boil over, but that is a mistake, for though juice is found under the cup when the pie has cooled, yet it never entered the cup while the pie was in the oven for this simple reason, the inside of the cup was as hot as the inside of the pie. The case of inverting a cup in the pie does more harm than good, for, as the heat cooks the fruit, it also expands the air in the cup, which tends to blow out the juice from the dish. But if a small hole, say a quarter of an inch, be made in the bottom of the cup, which, of course, comes to the top of the pie when inverted in the dish, the hot air will escape into the oven, and leave room for the juice to run into the cup, which, again, will descend amongst the fruit on the pie cooling. "Now how are we to make this small hole in the bottom of the cup?" says the reader. "Listen and you shall hear," says the writer. "Take a six-inch flower-pot, fill it with dry sand or mould; then take your cup, invert it, and push it down into the mould or sand till only the top is just seen; by which means the inside of the cup is as full of sand or mould as it will be of juice when in the pie; then take a sharp-pointed instrument, like an old pair of scissors or a one-pronged fork, and begin to peck away little by little, and you will soon have a small hole, which can then easily be made bigger before taking the cup from the flower-pot. The sand or mould prevents the cup from cracking or breaking during the chipping process. When the cup is used invert it in the pie, but take care that the small hole is free from the crust." Here is a very simple contrivance that will soon prove itself. A grand plan is to make three pies, one without any cup, one with a cup, and one with the cup with the hole in; then you can see the difference.—*Gardener's Magazine.*

Miscellaneous.

The Borrowing Nuisance.

My neighbour wanted to borrow my shovel—would return it in the evening. Evening came, but no shovel. The next evening it was quietly returned to its accustomed hook in the wood house, the blade covered over one-half its surface with a coating of dry mortar. I pride myself on my clean and bright shovels and hoes. Half an hour's work with an old knife blade, and the use of a sheet of sand paper, restored it.

Another time he was building a pig pen. The posts were too long, and they were very hard, and his saw very dull. Of course he borrowed mine, and he sawed off a nail with it—the posts had been used before. He sent his little boy to return the saw with the message—"Pa would a' sent nad got it filed, but he knowed you allus filed your own saw, and it wouldn't take but a few minutes to sharp it again."

Another neighbour "borrows" the privilege of getting water at my well. The well is deep, and we draw with a windlass. It is hard for my wife to draw up a bucketful, for she is feeble, and to save her, I usually fill the bucket before going away to my business. As the well is in an out kitchen, I leave the filled bucket hanging in the curb. My neighbour sneaks in, empties the bucket, and is mean enough to go away without refilling it. Wife and I conclude it is better to suffer wrong than to have a difficulty with a near neighbour, and so, for the sake of peace, we submit to this wear and tear of soul and body. When the same person borrows flour, for the best article a poor one is returned. Eggs, matches, a "drawin' o' tea," are never returned.

I might increase to great length a record of these examples, but my object is only to illustrate the position taken, that the habitual borrower's code is a lax one. This may be partially accounted for by the fact that the independent, self-reliant portion of the community seldom borrow, and the practice is mostly left to people of the opposite kind. The unscrupulous borrower usually belongs to one of two classes: the easy, shiftless sluggard, or the greedy, grasping victim of avarice. The first borrows with a dim expectation of paying some time, and the hope that he may be able to do so; the other borrows with a full design never to make an honest return if he can avoid it; it shall be clear gain, if he can make it so. Both are knaves, and unreliable in all matters of trust.

Among honest men, borrowing may be made a convenience, and mutually beneficial. Yet I think the question is worth considering, whether it does not demoralize a man—weaken his self-reliance. We get to relying on our neighbours more and more for the thing ourselves ought to procure. On the whole my advice is, to borrow only in cases of great need, when you can get along without doing so.—*North Western Farmer.*

A Bill said to have been presented by an English Hostler. Who can read it?

Afortheos..... 3d.
Cleninosansha..... 4d.
Bringinonimomagin..... 5d.

☞ The phrase "Sound on the Goose," originated in Pittsburg, Pa. That city, some years ago, was so overrun with this aquatic fowl that its sidewalks became in an intolerable condition. A public meeting was held on the subject, and at it the extermination of the offending bird was decided on. A charter election soon following, the two candidates for the mayoralty were questioned as to what would be their action in the premises in case of election. The one who was "sound on the goose question" was elected; and from that day the phrase crept into general use among politicians.

Advertisements.

Farm of Prospect Hill

TO LET, for a lease of 10 or 12 years, from and after 1st October next:

Being Lot 10, Con. 12, East Zorra, Oxford, 200 acres, occupied by the heirs of the late W. Dawson, Esq.

This is a first-class farm either for cropping or dairy purposes, and is in a high state of cultivation; 100 acres arable; well watered and fenced. Excellent Dwelling House, large Orchard, and extensive Farm Buildings, suitable for dairy purposes. By gravel road, 6 miles from Woodstock; 1 mile from Strathallen cheese factory.

Should an intending tenant take the stock and crop, by valuation, he could have immediate possession. Apply on the premises, or by letter post paid, to

MRS. DAWSON,
South Zorra, Ontario.

Prospect Hill, 20th June, 1868 5-14-2t.

Paxton, Tate & Co., Port Perry, Ont.,

Manufacturers of the

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

of all kinds,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

Port Perry, March 28, 1868. PAXTON, TATE & CO. v5-7-tf

JONES & FAULKNER,

(Late J. Jones & Co.)

Dairymen's Furnishing Store!

—AND—

DEALERS IN BUTTER AND CHEESE,

No. 141 Genesee Street, Utica, N. Y.

Dairy necessaries of every description always on hand, particularly **Pure Annatto**, an article in much request among dairymen.

No Duty on Annatto purchased in the United States.

☞ Special attention given to Canadian orders. v4-19-tf

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

The cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned. JAMES W. MANN,

v4-20-tf Port Dover, Ont.

THE BRIGHTEST

ITALIAN QUEENS

IN AMERICA.

Having imported three extra-fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale, price as usual, $5

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. B. hive $18—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS,
Apiarian,
Brooklin, Ontario.

Aug. 1, 1863. v5-16-tf.

GEO. A. DEITZ,

The Great Seed Wheat Grower,

Chambersburg, Pa., sends free a Descriptive List of the best Seed Wheats in the world. v5-11-6t

THE BEST SHEEP MARK YET INVENTED.

It is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr.,
Sarnia, Ont.

☞ N. B.—AGENTS WANTED. v5-13-tf-o.o.t.

PROVINCIAL EXHIBITION

OF THE

AGRICULTURAL ASSOCIATION

OF

UPPER CANADA,

TO BE HELD AT HAMILTON,

On the 22nd to 25th September, 1868.

PERSONS intending to exhibit will please take notice that the Entries of articles in the respective clases must be made with the Secretary, at Toronto, on or before the undermentioned dates, viz.:

Horses, Cattle, Sheep, Swine, Poultry, on or before Saturday, August 15th.

Grain, Field Roots, and other Farm Products, Agricultural Implements, Machinery and Manufactures generally, on or before Saturday, August 29th.

Horticultural Products, Ladies' Work, the Fine Arts, &c., on or before Saturday, September 12th.

Prize Lists and Blank Forms, for making the entries upon, can be obtained of the Secretaries of all Agricultural Societies and Mechanics' Institutes throughout the Province.

HUGH C. THOMSON,
Sec. Bd. of Agriculture.

Toronto, July 24, 1868. [v5-15-21.

IMPORTANT

TO CHEESE-MAKERS.

Collett's Patent Antiseptic.

WE are receiving and supplying second orders for our FRESH RENNETS; they are giving great satisfaction. We have a few hundreds of our old stock on hand, and will sell them at 18 cents each. WARRANTED GENUINE. Orders for fifty will have one bottle of our Patent Antiseptic sent with the goods—the use of which will entirely prevent all buffing of the Cheese. Letters, Post-paid, enclosing remittance, will receive prompt attention.

MARTIN COLLETT & SON,
468 YONGE ST.

Toronto, July 23, 1868. v5-15-1t.

EXECUTOR'S SALE.

Valuable Farm for Sale
BY AUCTION.

WILL BE SOLD BY AUCTION, AT THE

"DALY HOUSE," INGERSOLL,

On Wednesday, Sept. 2, 1868,

AT ONE O'CLOCK, P. M., that valuable Farm, being Lot No. 21, 3rd Concession of Dereham, containing **100 ACRES**, situated five miles from Ingersoll—the property belonging to the estate of the late William Scott.

☞ TERMS made known at time of sale, or on application to the Executor or Auctioneer, Ingersoll P. O.

JOHN MARKHAM, EXECUTOR.

JAS. BRADY, AUCTIONEER.

Dereham, July 20, 1868. v5-15-2t.

The South Grenville Agricultural Society

WILL HOLD THE

ELEVENTH ANNUAL EXHIBITION,

AT PRESCOTT,

ON

Wednesday, Thursday, and Friday, Sept. 30, Oct. 1 & 2, 1868.

WM. TRACY, Secy. and Treas.,

Prescott, August 1, 1868. (V5-15-2t) *pro tem.*

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,

167 King Street East. Medical Hall Toronto.

v4-14-1f

DIEHL WHEAT.

THE Subscriber has for sale a quantity of DIEHL WHEAT at $2 per Bushel.

LEWIS SPRINGER,

v5-15-4t.* Hamilton, Ont.

THE FINEST STRAWBERRY

FOR AMATEUR CULTURE!—**NAPOLEON III.** of LARGE SIZE, HIGHEST FLAVOR, GREAT PRODUCTIVENESS, AND EXTREME VIGOUR AND HARDINESS. We offer a splendid stock of young, thrifty plants of the valuable new French variety. Illustrated Descriptive Circular mailed to applicants.

☞ Price of Plants, (by mail, Postage paid,) $3.00 per doz.

EDW'D J. EVANS & Co.,

v5-15-4t. YORK, PENNA, U. S.

DIEHL WHEAT FOR SEED.

PARTIES in want of the **BEST SEED WHEAT**, can be supplied by the undersigned, who has for sale a quantity of excellent Diehl Wheat.

JAMES McNAIR,

v5-15-1t.* RICHMOND HILL, P. O.

Markets.

Toronto Markets.

"CANADA FARMER" Office, July 30th, 1868.

FLOUR AND GRAIN.

THE Produce market during the past fortnight has been quiet; there has been little doing owing to the lightness of the stocks of flour and grain here.

Flour.—The market has been quiet but firm. There has been a fair demand for fresh ground No. 1 Super, but there were few lots in the market. Prices have been steadily advancing. Holders now ask $6.75 for choice brands, and some sales took place at that price, which may be taken as the ruling market price here.

Oatmeal—Selling at from $6 to $6.25.

Wheat—The market is almost bare of spring wheat, for which there has been a fair demand. Several small lots sold at $1.50; there are buyers of car lots at that price. Fall wheat has been offering freely, but there was little or no demand; the market is decidedly dull for fall wheat; lots were offering during the week at $1.50, with no buyers at that price. To-day a car sold at $1.46.

Oats—The market is firm, with good demand; there are not many lots offering; holders are now asking 55c for car lots. To-day 3 cars sold at 53c at Port Hope.

Barley—Nothing doing and nominal.

Peas—The stocks here being almost exhausted, there has been nothing doing in car lots. Prices are therefore entirely nominal.

Hay—Good supply, at $12 to $15 per ton.

Straw—In demand, at $15 per ton.

PROVISIONS.

Pork—Stocks light and held firmly at $23 50 for mess.

Bacon—In brisk demand at 11c. to 11¼c. for Canadian.

Hams—Selling freely at from 14c. to 15c. for smoked.

Butter—The market for the past week has increased in firmness; the dry weather at home, with favourable foreign advices, has caused dealers to buy freely at our quotations. We consider the prospects to depend upon the weather. We quote even yellow at 14c. to 15c. Selected parcels at 15c. to 16½c.

Eggs—Lower; offered at from 11c. to 11½c.

Cheese—Quiet without decided change in prices. We quote 9½c. to 11c.

HIDES—Green, rough, per lb., 5½c. to 6c.; do. green, inspected, 7c.; do. cured and inspected 7½c. to 8½c. *Calfskins*, green, 10c.; do. cured, 12c.; do. dry, 18c. *Lambskins*, green, 15c.; do. pelts, 10c.

THE CATTLE MARKET.

We quote, per 100 lbs., dressed weight:—1st class cattle, $6; 2nd do. $5.; 3rd $4. *Sheep* have been in fair supply. 1st class, $4.; 2nd do. $3; 3rd do. $2. *Lambs* have been in demand. We quote: 1st class $2.50 each; 2nd, do. $2; 3rd, do. $1.50. *Calves* have been offering freely. There has, however, not been much demand. 1st class $6 each; 2nd, do. $4; 3rd, do. $2.

Montreal Markets, July 30.—*Flour*, superior extra, $7 50; Extra, $6.80 to $7; Fancy, $6.60; Welland Canal superfine, $6.65; Superfine No. 1 Canada Wheat $6.60 to $6.70; Superfine No. 1 Western wheat, $6.30 to $6.40, No. 2 do, $5.85 to $6.10; Bag flour $3.30 to $3.60. *Wheat*—Canada Fall, $1.45 to $1.50; Canada Spring, $1.55 to $1.60; Western, $1.42½ to $1.46. *Oats*—Per 32 lbs., 44c. to 45c. *Barley*—Per 48 lbs., 90c. *Butter*—Dairy, 15c. to 17c.; store packed, 13c. to 16c. *Cheese*—Factory, 9c. to 10c. per lb. *Ashes*—Pots, $5.65 to $5.70; Pearls, $6.60 to $6.65. *Pork*—Mess, $24.75 to $25; Prime Mess, $16.75; Prime, $16. *Peas*—$1.12½ to $1.15. *Rye Flour*—$5.75 to $6.

Guelph Markets, July 30.—Fall wheat, per bush, $1 40 to $1 45; spring wheat, $1 44 to $1 46; oats, 50c to 51c; peas, 65c to 70c; barley, 70c; wool, 26c to 27c; hides, per 100 lbs, $6; beef, per 100 lbs, $7 to $8; straw, per load, $3; hay, per ton, $7 to $8; eggs per dozen, 12c to 13c; butter, per lb., 15c to 16c; potatoes, per bag, $1 25 to $1 50; sheep skins, 20c to 30c.

Hamilton Markets, July 30, 1868.—*Fall Wheat*, per bush. $1.40 to $1.47; Spring Wheat, $1.38 to $1.40; Barley, $1 to $1.5; Oats 60c. to 65c.; Peas 80c. to 85c.; Corn 65c to 70c.; Potatoes per bag $1.25 to $1.50.

Milwaukee Markets.—July 29, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 6,000 bushels; shipments 6,000 bus. No. 1 wheat firm at $2.14; No. 2 do. at $1.78 to $1.79. Flour quiet and unchanged. Pork firm at $28 to $28.25.

Chicago Markets, July 29, noon.—William Young & Co.'s report.—*Wheat*—Receipts, 29,000 bushels; shipments, 1,000 bus.; No. 2 Wheat firm at $1.80 *Corn*—Less active at 94¾c. to 95c.; receipts 84,000 bush shipments, 51,000 bush. *Pork*—Firm at $28.25 to $28.50.

Contents of this Number.

	Page
THE MONTH	225
THE FIELD:	
Summer Fallowing and Green Manuring	226
Haying	226
The Spruce for Hedges	226
New and easy method of making Maple Sugar	227
The Cultivation of Land	227
The Difference between Ploughing and Cultivation	221
The Peck per Acre	221
Good Farming, High Farming	221
Ashes for Grass	221
Salting Wheat	221
Haying in Catching Weather	221
STOCK DEPARTMENT:	
Hampshire Down Wethers (with engraving)	228
The Chemistry of Respiration	228
The Summer Management of Stock	229
Sheep Combing	229
Challenge Colt	229
Cruelty to Horses	229
VETERINARY DEPARTMENT:	
Diseases of the Horse's Foot	229
THE DAIRY:	
Manufacture of Whey Butter	230
Hunting for the Cows	230
Milk from a Calf	230
Honesty	230
Collett's Antiseptic	230
HORTICULTURE:	
Report on the Philadelphia Raspberry	231
Failure of Young Orchard Trees	231
Toronto Electoral Division Society's Show	231
CORRESPONDENCE:	
Alsike Clover	232
Fine Sample of Wheat	232
Bent Grass	232
Sheep Ticks	232
EDITORIAL:	
The Season	232
Emigration Documents and Arrangements	232
Beet Root Sugar Making	233
Value of a Railroad to the Farmer	234
Journal of the Farm	234
Diehl Wheat	234
AGRICULTURAL INTELLIGENCE:	
British Agricultural Gossip	234
Hedge Plant Growers' Convention	235
Official Report of the Condition of Crops in the United States	235
Royal Agricultural Society's Show	236
The Hay Crop in England	236
Agricultural Meeting	236
Oxford Wool	236
Traction Engine	236
Gambling in Cereals	236
CANADIAN NATURAL HISTORY:	
The Rock Bass—(with illustration)	236
Acclimation of Birds	236
Stuffing Birds—(with cuts)	237
ENTOMOLOGY:	
Entomological Society of Canada	237
Knocking the Curculio	238
Leaf-rolling Caterpillar on the Apple	238
The Three-lined Potato Beetle	238
The Privet Sphinx Caterpillar	238
THE HOUSEHOLD:	
Washing Made Easy	238
What Shall I Do?	239
Improvement in Cistern Pipes	239
About Sun Strokes	239
Philosophy for the Ladies—Pie Juice	239
MISCELLANEOUS:	
The Borrowing Nuisance	239
"Sound on the Goose"	239

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 28 and 22 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (TWENTY CENTS,) payable in advance. Bound Volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES FOR ..... NINE DOLLARS.
TWENTY COPIES FOR ..... SIXTEEN DOLLARS.
FORTY COPIES FOR ..... THIRTY DOLLARS.
ONE HUNDRED COPIES FOR ..... SEVENTY DOLLARS.

To Agricultural Societies ordering in excess of 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent

GEORGE BROWN,
Managing Director.

VOL. V. NO. 16. TORONTO, CANADA, AUGUST 15, 1868. POSTAGE FREE.

The Field.

Cultivating the Thistle.

To the Editor of THE CANADA FARMER:

SIR:—There are two things at this time, in reference to the Canada thistle, of which I would be glad to say a word worthy of your notice. First, before the Thistle Act was passed, in 1866, Path-masters always mowed down the thistles growing on their respective roads, but the past two years they have ceased to do so (at least in this locality). There are now growing on embankments hideous avenues of thistles, formidable enough to make fences, and they could scarcely ever present a more vigorous growth; the dry weather has had no retarding influence on their perfect development. A few remarks, though having a local reference, might have a general bearing. Then supposing we start from the city westward, we find long before quitting the limits, vacant lots, (as they are called) completely occupied by thistles, all of which might have been cut down the last week in June for a very trifle. Passing on to a little west of the Lunatic Asylum, and joining the Grand Trunk Railroad on the south side of the lake shore road, is a large portion of the garrison common, which some two or three years ago was cultivated, but is now again abandoned, and here you see the thistle in its greatest state of perfection. Some think they might be made useful in the event of an invasion from that quarter, because they could place in ambush several regiments of soldiers, while others think intrenchments would answer as well; however, military authorities ought to know best. One thing is certain, there is enough seed on that one spot to stock the whole Province. The next remarkable thistle forest you come to (still going west) is a little before you come to the Etobicoke river, where is a large field that has been abandoned to the thistle for five years, and they visibly began to deteriorate for want of proper cultivation, and this year they have got it, by the ground being ploughed and sown with barley. Ploughing the ground that is infested with thistles, after they have ripened their tops (in the fall or in the spring), is the unfailing way to strengthen and increase their number. Take a large district as a whole, it is safe to assert that in the past seven years the thistles have doubled their numbers. In all extreme cases it is wrong to waste time in the fall or spring, to plough the thistle ground, or sow it with grain (for a season would be comparatively lost); but let them grow till after midsummer, then mow them with the mower or scythe, or with both, and as soon as dry, burn them, after which plough, and if need be, get some help. After this, use the cultivator at least twice, then sow buckwheat, with two good harrowings, and the thistles will be at least three parts subdued, and not one can possibly ripen seed. As soon as the crop is ripe, cut and remove it, and without loss of time, use the cultivator (not the plough), which will take off the heads of all remaining thistles (let none escape); also it will cause to grow every grain of wheat that might have shelled out, and so avoid future trouble with the next crop. A first class crop of buckwheat will just pay the farmer all expenses, and leave his land in good condition for spring wheat, to be seeded down with clover. All the labour attending the cultivation of the foregoing crop will not in the least interfere with the grain harvest, or cultivating, or collecting the farmer's root crop. We find here now and then, and I suppose it is so everywhere, sapient legists, who boast and say they can drive a coach and six through any Act of Parliament, and the Thistle Act especially, arguing "a man may grow what he likes on his own land." Well, suppose the thistle grower is allowed to possess this right, then let the legislature come down upon him and spoil his market for this class of produce, by inflicting a fine heavy enough to allow a portion of it to go to the informer, to make it worth his while to look after the vendors of this nuisance. There are some who care not for consequences, and, so long as they can get the same price for thistle-heads as for grain, or the same price for the dead thistle plants as for hay, and different sorts of straw (especially pea-straw) they will continue to do so; but let the law plainly designate all such transactions as obtaining money under false protences, with a bill of pains and penalties attached, and the farmer would quickly give up growing the vile stuff, because there would be no market for it, and the whole community would be benefited by the change, and none more than the farmer himself. Secondly, I wish to say one more word in reference to seeding of the Canada thistle. I have discovered this much: that farmers generally do not know a thistle seedling plant while in its infant stage of two leaves. To all such I would say, beg or buy a pinch of lettuce seed and sow it, for the young seedling is precisely similar to the young thistle, being closely related to each other as species. I have recently received a Chicago newspaper, in which I saw a significant heading to a paragraph, namely, *The Canada Thistle*. The writer implores one and all to lend a helping hand, to spare *no expense* to arrest and exterminate its presence, for it has made its appearance in three places, at least, in Illinois. The reason assigned for this vigilance is, its presence will depreciate the value of land twenty-five per cent. I was not aware till recently of that general incredulity among farmers in disbelieving the propagation and extension of the thistle by its seeds. To reason from analogy and from facts of every year's experience, I see no reason to conclude that the thistle seed is less certain to grow (when placed in favorable circumstances) than any other weed; and if so it might fairly be inferred there is not one in a million that is not capable of producing a plant. But if they all grew, it would be woe to the inhabitants of *terra firma*, at least; for to multiply every year's product for twenty-five years by eleven thousand (the product of one thistle) would produce enough to sow thickly the whole globe, and then there would be sufficient left to build a bridge across the Atlantic, although the waters should be miles deep. The learned tell us that one pair of red spiders would soon produce a quintillion, but then there are other animals that would as soon consume them, and birds eat an enormous quantity of thistle seeds. Thistle seeds, doubtless, are endowed with the same powers in common with other seeds, to preserve their vitality when buried deep in the ground, and when divested of their hoary trapping can fall down in cracks in common with other seeds. But I anticipate some will say "let us have facts and not theory." Here they are: Seven years ago I reclaimed a portion of a swamp where no thistle ever grew nor could any animal pass over it. In 1865 I had to abandon part of it (being cultivated with the spade), but in the fall there was a heavy crop of grass, &c. On mowing it (to my surprise) I found it full of thistles half a yard high, and on examining them I found every one of them were seedlings. Every year we make up a hot-bed in the spring, and collect some of the best earth we can get to put on the top, and the seedling thistle has never once failed to be thickly represented among a multifarious mass of weeds. Last year, while walking across a field in company with a farmer, he stooped down and picked up something; it was a thistle head, and full of young plants. He remarked that "some people did not believe they grew from seed, but seeing was believing." I have done the same thing myself without being curious enough to count their number. This spring a neighbouring farmer called on me, and, of course, we had some talk about the thistle. After referring to this fact that farmers did not believe the seeds grew, he said: "I was determined to put it to a test, I took a thistle-head and planted it, and there came up just fifty plants." I live next to a neighbour who don't believe in bothering about thistles at all, and enormous quantities every year go to seed, of which I get a large share. This spring I ploughed up a meadow, having been down five years, and the seedling thistles sprung from the upturned soil by thousands, the seed having lain buried all that time; and if the vitality of the seed was preserved for five years so it would be for fifty, or five hundred. This spring I dug up a piece of ground that had never before been disturbed by plough or spade, from which grew thistles and an enormous lot of mullen. I have now one *seedling* thistle growing from the top of a stump, which I hope (for a time) to preserve. Before bidding adieu to this subject permit me to refer to friend Peter Shisler's last letter on this subject. He speaks of the seeds of thistles as imaginary foes, but the plant itself as a real one, and asserts: "the most careless could not fail to observe that its principal mode of pro-

pagating itself is by the root;" and as a proof of this, he refers to my first letter, wherein I related an experiment of a thistle being planted in a garden, having produced sixty plants in the spring, after (supposing) they had extracted all the pieces. Let it be observed, this thistle was placed in an artificial position, with rich, damp, and unctuous earth, with no other plant to share or obstruct the ramification of its roots, which cannot happen in a state of nature. I once grew a single oat plant, to see what could be done by high cultivation. I petted it all I knew how. It produced seventy-five stalks, which numbered three thousand grains; but, like the thistle, it could not be done in an ordinary way. There is, moreover, in my mind some ambiguity as to the precise application of his expression, "They are propagated by careless cultivation," which, perhaps, he would have the goodness to explain.

PUBLICOLA.

Building Stone Fences.

A New Hampshire correspondent of the *Genesee Farmer* writes as follows on this subject.

"A stone fence built upon a light, porous soil, if laid with tolerable skill, will stand for a long time; but to construct one that will stand upon a wet, springy tract of land, especially if it is sloping, is far more difficult. The action of the frost will gradually loosen the foundation, and, when the ground becomes soft in spring, the stones are crowded out of place, and in a few years the fence is in ruins. When the line of direction is east and west, fences are injured most by frost, for the ground upon the south side is thawed earlier in spring.

"These difficulties, however, may be overcome. If the proposed fence is to be on a loamy soil that is not very wet, it will be sufficient to make a small ridge or embankment, say four feet wide and one foot high, to build the wall upon; but if the land is spongy, dig a ditch three or four feet wide, and deep enough to remain uninjured by the frost; fill it with small stones, or partly fill and cover, and then your fence will have a foundation which cannot be shaken.

"The foundation well prepared, the next thing is to have the fence well laid. Only such stones should be used as will be firm and afford a good surface to build upon. They should be so laid as to secure these results, and endeavors should also be made to have each principal stone, in all except the lower course, rest upon two below it. It requires no little skill to build a stone fence well, but by following these rules one is not likely to go far out of the way; and when it is once made it is very durable."

Another correspondent in Oneida county, N. Y., writes as follows, adding that stone walls constructed according to this method in the most frosty sections of Wales have stood for centuries:

"Plough four furrows six or eight inches deep and ten inches wide; take all the sods, or turfs, and lay them on one side—also all the loose earth that is easily taken up with a shovel, and lay it on the same side with the turfs, both to be on the opposite side from the stones for the wall; then commence setting stones on the sides of the trench large enough to rise about three or four inches above the outside surface; then fill in with small stones until within two or three inches of the top of the border stones; then throw on a few shovelfuls of fine dirt, passing the shovel over it to make it level; then commence laying on the border stones, being careful to have them tip a little towards the centre; then commence again with the small stones and dirt as above described. When the dirt is used up, cut the turfs at suitable lengths and lay lengthways of the wall, bringing the edge of the turfs close up to the edge of the border stones, filling the middle space with small stones. In this way there will be about two tiers of dirt and two of turf—if more, all the better.

"It will be seen that this wall will be about forty inches on the bottom and twelve inches across the top, when raised about four feet in height. If there is no stone handy large enough to reach across the top, continue on as before until the top is well rounded off."

Canada Thistles.—When to Cut.—The N. Y. Agricultural Society has received a communication from John Ferguson, of Caldwell, giving his experience in fighting Canada thistles. He ascertained that cutting them, as he did, August 17th, 18th, 20th and 24th, was sure to kill them. He cleared his farm entirely by pursuing this course of cutting. There is a general concurrence in the opinion that August is the right time to mow thistles for the purpose of killing them.

Sandy Lands.

The common opinion is that the sandy lands of New England are its poorest lands—and in conformity with this opinion, thousands of acres are suffered to lie uncultivated, to spring up to wood if they will, or afford a scanty crop of wiry grass to sheep that are allowed to run over them. If cultivated at all, it is with rye, generation after generation, either every year, or every alternate year, as the land may hold out, and without the application of manure! All this is wrong, both in theory and practice, and would not be continued if we better understood the nature of soils and how to treat them.

Sandy lands are usually among our most *level* lands, and are cheaply cultivated on this account. They are light, and are ploughed at one-half the cost of adhesive soils. Twice as many acres of them may be hoed in a given time as can be in heavy and stony lands. Sinclair says sandy soils of a good quality, under a regular course of husbandry, are of great value. They are easily worked, and at all seasons; they are cultivated at a moderate expense; are not so liable to injury from the vicissitudes of the weather; and in general are sufficiently retentive of moisture to produce good crops, even in dry summers.

Sandy lands may be improved in several ways, and the plan adopted should depend upon surrounding circumstances. If they are adjacent to a clay pit, clay may be used; if near a deposit of muck, muck may be used, or both may be employed with decidedly beneficial results. If the land is too far from such sources of supply, then another plan may be adopted. It may be restored by turning in crops, green or dry, where they will decay under the surface. Sandy lands may, therefore, be reclaimed, wherever situated, and brought into a fertile condition, and at a fair profit.

One plan of operation is to plough under green crops, such as oats, millet, buckwheat or clover, when the crop is in bloom, reseed at once and plow in another crop the same year. If the land has been dressed with clay or peat muck, this operation greatly hastens the work of reclamation. Dana says that it is the experience of some practical men, that one crop allowed to perfect itself and die where it grew, and then turned in dry, is superior to three turned in green. The whole result is explained by the fact that dry plants give more *geine*, (the word means "earth," or the product of decaying vegetable matter) than green. Green plants ferment—dry plants decay. A larger portion escapes in fermentation as gas, and more volatile products are formed than during decay. The one is a quick consuming fire—the other a slow mouldering ember, giving off, during all its progress, gases which feed plants and decompose the silicates (that is, sand, flint, quartz) of the soil. These hard silicates in the soil have their uses, and an important part to perform. It belongs to us to supply them with vegetable matter. Feed them well with muck, straw, meadow hay, rushes, flags, or almost any other vegetables, and their decay will "cause an evolution of carbonic acid gas; this decomposes the silicates of potash in the sand; that potash converts the insoluble into soluble manure, and lo! a crop." When once a crop is obtained even on the poorest sands, there is the nucleus of fertility, and fair crops may be obtained from it perpetually. —*N. E. Farmer.*

The Treatment of Tree Seeds.

Our people are at last waking up to the importance of trees, whether for fuel, timber or shelter. The subject is already beginning to have a literature, as we last month noticed the "Forest Tree Culturist" of Mr. Fuller. Upon looking over our correspondence, we find a great many queries as to the proper method of treating particular tree seeds, and we can best answer these queries in a lump. These seeds may be divided into two classes, one including those that must be sown as soon as ripe; the Elm and the Red and White (or Silver) Maples ripen their seed in the spring. As we have shown in a former number, the failure with these seeds is due to want of knowledge of the fact that they ripen in June, and that they must be sown at that time. If kept until the following spring, these seeds lose their vitality and fail, but if sown as soon as mature, they make strong young plants the first year. Other seeds needing immediate sowing ripen in autumn, and these are to be treated as nearly as possible as nature treats them. If late in autumn we look beneath the fallen leaves of an oak tree, plenty of acorns will be found from which the radicle has protruded, showing that germination has already commenced. This will give the hint as to the proper treatment of acorns, which are to be planted shallow, and the bed protected with a good covering of leaves or other mulch. Chestnuts, Horse Chestnuts and Buckeyes, Tulip Trees, Hickories and Walnuts are treated in the same way. Hickories and Walnuts are said to do well if mixed with earth in a cool cellar during winter, and we have succeeded perfectly well with Horse Chestnuts put in a box of earth and exposed to the weather all winter.

Seeds that are kept over winter should be preserved at a low and even temperature, and of course be quite dry before put away, to prevent mould. The following are among the commonly planted seeds that are usually to be had of seed dealers: Honey Locust, Osage Orange, the Ashes, Larch, Deciduous Cypress, Maples (except red and white), Spruces, Pines, and other evergreens. Honey Locust, if fresh, will grow without preparation, but if old, it should be scalded. Osage Orange must be sprouted; the others merely need to be sown in a light, rich soil. Evergreens are very tender when young, and are apt to be sun-scorched. These are best sown in beds where they can be shaded by a lattice work screen made of laths.

Young trees, like other young plants, require care, and no one need sow the seeds with the expectation that they will take care of themselves. Weeding, cultivation and thinning must be duly attended to, and if the little trees are likely to suffer from drouth, the ground should be covered with a good mulch of saw-dust. If they are left in the seed bed over the first winter, they will need to be covered with leaves. —*American Agriculture.*

Marl.

In the southern portions of New Jersey, Delaware and Maryland, there is used with success a valuable natural fertilizer with the above name. New Jersey in particular is underlaid with it, and in the largest and finest belt there are thousands of tons exhumed from the earth annually, and sent to all parts of the State. The Squankum enjoys the best reputation, being of a deep green colour, and containing a much larger proportion of valuable ingredients. It has been proved by years of experience to be the best and cheapest fertilizer for all kinds of crops. Immense quantities are taken out at the above place, and delivered along the line of the railroad at small cost. A dressing of one hundred to one hundred and fifty bushels is applied per acre once in three years. Its value is found in the fact that it contains nearly all the substances necessary to make up the ash of our common plants. Prof. Cook, State Geologist of New Jersey, says: "A comparison of the analysis of marl with that of the ash of plants shows how abundantly it supplies the mineral substances needed for the growth of vegetation. The following is the analysis of Squankum marl:

Water	19·600
Silica	51·162
Protoxide of Iron	18·200
Alumina	6·100
Potash and Soda	4·274
Lime	3·478
Magnesia	2·037
Phosphoric Acid	4·457
Sulphuric Acid	0·329"

The growth of white clover upon marl-heaps has come to be a test of its character. Those marls containing lime soon become covered with a spontaneous and luxuriant growth of clover.

Marl can be purchased in any quantity, in New Jersey, as low as $1 50 per ton, and in Delaware and Maryland at from $2 to $2 50 per ton.

The amount of Potash and Soda in a ton of Marl is 85½ lbs., which, at 6 cts. per lb., amounts to	$5 13
Phosphoric Acid, 90 8-10 lbs. at 8 cts.	7 20
Value of a ton of Marl	$12 33

Besides these elements there is always a small quantity of ammonia. The sulphuric acid unites with the lime, forming sulphate of lime, also a valuable fertilizer; besides these, there are plaster and iron; but, at least estimates, a ton of marl is worth at least six times the price it costs in the above sections.

Hardening the Mould-Board of Ploughs.—A new metal has been discovered for the manufacture of the mould-board of ploughs which gives them all the hardness and temper of steel, in combination with the toughness of iron. The mould-board (good Iron) is heated and dipped into molten iron. It remains there ten seconds, when the two surfaces become heated to a white heat, while the centre is not heated through. It is then immediately dipped into water, and [illegible] come out harder than the highest tempered steel, while the interior is still iron and retains all the toughness and strength of the iron. The advantage claimed for this invention is that the plough made by the process will take the finest and hardest polish, and they will be tough enough to endure any reasonable knocking about in stony soils.—*N. Y. Weekly Herald.*

Thinning of Turnips.

A correspondent of *The Farmer* (Scottish) writes as follows, on the above subject:

"Turnips have for a long course of years been generally thinned with the hand hoe; and in thinning, great care has been taken to have the plants left all laid flat upon the ground, with only a very feeble hold of the soil. The method is still in full practice by a number of farmers at the present day; but a considerable number have found, from experience, that this is not the best mode of management. The new, and at present best method, is the *hand thinning*, which is gradually growing in favour, and countenanced by several extensive farmers. It is allowed to be as speedy a mode, when performed by expert hands, as the common old hand-hoeing system. This new method is performed by the thinners; boys and girls can do the work admirably, and at little expense, and at every proper distance for a plant to be left, a good-sized one is seized by the left hand, while the right clasps and pulls out what are unnecessary. By this system the plants are left less injured and with firmer hold of the soil than when thinned with the hoe, which causes them to come forward more rapidly than when laid prostrate and loosened. For swedes the plan has been found to be advantageous. It is but natural to suppose that, where the plants are laid over and loosened, even allowing them to take but a short time to rise again, those never laid over must be a stage further advanced by the time the others have got upright, besides they are less liable to injury by being tossed about by high winds. The experiment has been tried by several farmers, and the result has proved favourable. The use of the hoe in cleauing is, nevertheless, necessary, and this is a light matter and easily performed. One trial will be found convincing."

Whereupon the Editor observes:

"The mode of thinning turnips mentioned by our correspondent may be new in his neighbourhood, but we adopted it more than twenty years ago, not indeed from any idea that it was an improvement, but because we were so situated that we could not get hands who were expert in the use of the hoe. We found, however, that it was a good plan, and continued to practise it; but the ground must be gone over with the hand-hoe very soon after the plants have been thinned."

The New Double Furrow Plough.

This recent invention was tried on Saturday last, through arrangements made by Messrs. Benjamin Reid & Co., on a field at Rubislaw, near Aberdeen. The plough is the invention of Messrs. Thomas Pirie & Co., millwrights, Longside, Aberdeenshire, by whom it was patented and first exhibited at the show of the Royal Northern Agricultural Society in July last. There it received commendation from the judges, and was set aside for trial in autumn. At the trial, which took place on the farm of Auchterellon at the same time as the competition in reaping-machines, held under the auspices of the Society, its merits were seen and appreciated. One man can superintend the plough and also drive the horses. By means of two iron handles or levers, fitted with regulating screws—one regulating the first plough, the other for regulating the second—he directs the depth of the furrow slice, which can be altered at any time without stopping. A third lever is used to move the front or steerage wheel, by which the plough is readily turned. On this occasion, the size of furrow was six by nine inches. The coulter and mould-boards are of cast-steel. Applying the dynamometer, the draught was found to be favourable as compared with that of the single plough. Here the average draught was nearly six cwt., and the common plough, when tried on the same ground, averaged four and a half. Tried immediately after on land after turnips, the difference was rather more marked; so that it may be stated generally that the draught of the double furrow plough on such land is much about the same as the common plough on lea. Of course, the same dimension—six by nine inches—was adhered to in making the comparison. Trials made on heavy clay lea, in different parts of the county, show a similar difference of draught between the double and the single plough. On such, it is calculated, three horses draw the former with more ease than two can do the latter. And then, as the amount of work done, with two horses in eight hours, one double plough turns over two imperial acres of light loamy lea; and as an instance in point, on the farm of Tipperty, near Ellon, some weeks ago, with three horses, strong land in lea was ploughed with a furrow of seven inches by nine and a half inches, at the rate of two and a half acres in ten hours.—*Farmer* (Scottish.)

Top-Dressing Grass, &c.

The agricultural correspondent of the *Inverness Courier* says, with reference to the use of artificial manures for the purpose of top-dressing grasses, &c: "We see that everywhere, almost, top-dressing is now the rule for much of the grass. Nothing pays better when a proper opportunity is taken for doing it, and suitable manures are applied, because whether for pasture or hay, a thick sole, and a vigorous start, is half the battle won. If for hay, we have a prompt return in the stack; if for pasture surely it is wiser to increase the growth on one's own land than to send half the cattle away to enrich a "superior grass park" let by somebody else for your money and their manure. We know very little land that would not repay the farmer for top-dressing his first year's grass at any rate. For of course all the conditions that hold good for increasing crops in general, hold good as regards grass; the better, and richer, and drier the soil, the more will the profit be, notwithstanding the fact that very enormous crops of grass grow in the sea-sand, where, as a rule, cereals with the same treatment would do no good. It was their experience of this fact that brought those Ayrshire farmers to grief, of whose wonders we heard so much ten years ago. Not that they were farming sea-sand, but that they mistook the effects of over-enriching cereals by top-dressing. In our own time we have succeeded in illustrating the process. On a farm of the lightest soil—if it might be called soil at all—we broke up four or five-year-old lea, and with a little labour and a great dose of guano, got a spanking crop of turnips. We gave the whole crop to sheep, sowed barley, and had the most beautiful and bulky growth the eye could desire. Very proud we were of our farming, and we went on talking largely about our precious field till harvest approached. One day we made the startling discovery that some of the long and handsome ears happened to have no grain in them, and we pursued our researches long enough to become aware that perhaps the less we said about the whole affair the better; for, in fact, that field which looked five quarters did not thrash out *two* bushels! We had stimulated the poor weak soil into a fever, and grown grass (in fact), and left in it no strength for growing grain. Of course it is very possible to waste top-dressing even on grass, for if a long drought succeeds the time of application the manure will be nearly useless."

The Barberry as a Hedge Plant.

P. Allyn, of Benton Harbor, Mich., writes to the New York Farmers' Club as follows:

"I want to say a few words about the barberry. One fact is worth half a dozen guesses, and I have experimented on barberry for ten years, and cannot see its character as some do. Ten years ago, or about that time, I planted one hundred barberry bushes in Delaware county, Iowa. The following winter, on thirty different days, the mercury sunk down from 10° to 30° below zero, and it did not injure the barberry. This ought to establish its hardiness. Four years ago I planted ten rods of small barberry plants for a hedge on my place. That hedge now appears much like a perfect fence. Man or beast would try more than once before passing through it. Two years more of such growth as it had last year would make it hog-tight, horse-high, and bull-strong. As to its blasting crops, I have raised wheat, corn, sugar cane, and many varieties of fruit right along beside the barberries, and the only thing I ever knew blasted was a few English gooseberries, which always blasted even when far away from the barberries. A Massachussetts man complains of the seedlings springing up. I will pay him $100 for 20,000 such plants, delivered to me next fall. One writer complains of their sprouting at the root, and becoming a nuisance. I deny that one plant of the barberry ever sprouted from the root. It does, it is true, throw up each year straight sprouts from the collar of the plant. The second year said sprouts throw off lateral branches, which lock and interlock with the previous growth. All of these sprouts unite below the collar in one central root, which at the depth of eight or nine inches branches out into proper roots, but I have never seen one bud on the root of any plant of the barberry. Let no one send to me for seeds or plants, for I have neither for sale. I do, though, fully believe that the barberry is yet destined to become the great hedge plant of America.

The Early Rose Potato.—Our American exchanges give a very flattering account of this new potato. Specimens of this year's growth are described as large and of excellent flavour. It is thought it will take the lead of all the early sorts.

New and Simple Potato Digger.

A potato-digging machine, easy of construction and light of draft, is thus described by a correspondent of the *Country Gentleman*:—

It consists of a wooden bar four feet long, into which are inserted from the bottom five steel teeth. These teeth, which are of bar steel, rounded on the upper surface and brought to a point at the working end, are put through the wooden bar and secured by nuts, so they are easily removed. From the wooden bar to the principal curve in the teeth is about five inches, and from this curve to their outer extremity they form an angle of about fifteen degrees. An iron rod, rising about two feet and a half from the wooden bar, and fastened to each end of it, forms the handle. Trace chains, from six to ten inches long, pass from each end of the bar, by which to attach the horse to the machine, which is done by hooking these chains to the traces, so no whiffletree is used.

As to the efficiency of this digger, it is alleged that it does its work well and rapidly, inasmuch that two men dug forty-three bushels of potatoes with it, and put them in a waggon, in three hours, last fall. This labour, by the same men, would dig and put in waggons over 140 bushels in ten hours.

Ashes for Wheat.

A correspondent of the *Rural Gentleman*, in Delaware, writes strongly in favor of ashes to prevent rust in wheat, and from experience has found them of great value. As to the effect of ashes, he says they have, like Shakespeare's "sherry sack," a "threefold operation;"

1. The ashes operate as a manure upon the wheat, even in the limited quantity of eight bushels per acre.

2. They push the wheat forward several days, and in time to escape the hot, sultry days which often prevail about the time of the "heading out" of the wheat; and

3. They strengthen the stem, giving it substance and solidity.

I may add one or two more properties of the ashes; they afford just that kind of pabulum or food which is best for the development and perfection of the grain, and will, in my opinion, also prevent the ravages of the fly in wheat. I would here venture the remark, that whoever once tries this experiment will thereafter spread his wood ashes upon his wheat, as above indicated; and, in so doing, he will effectually guard against and prevent "the rust" in his wheat.

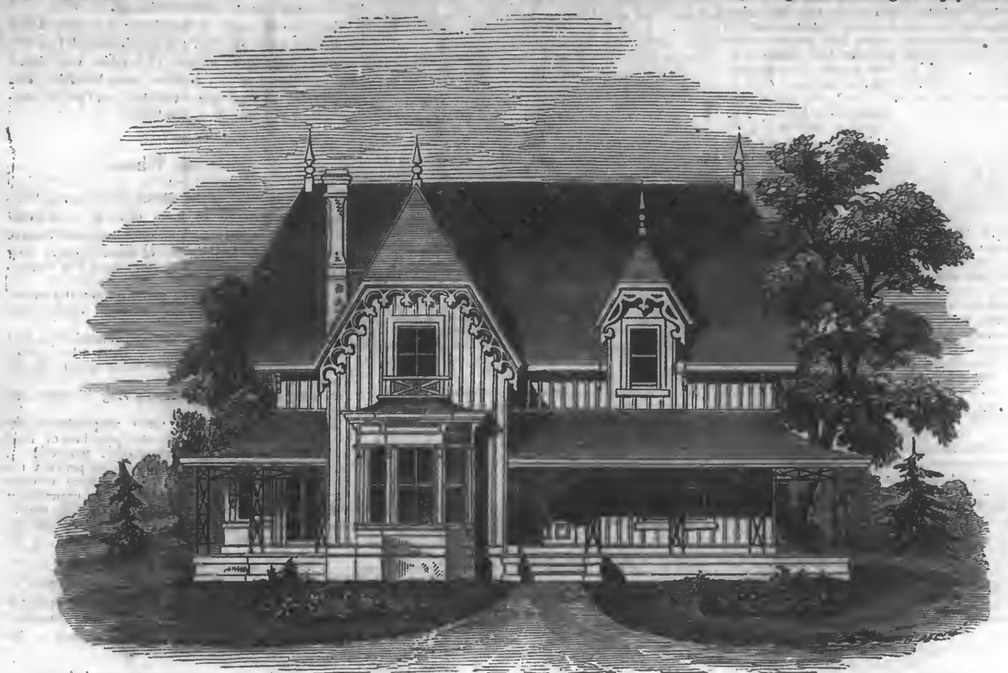
Great Yield of Barley.—A California farmer by the name of Gridley, who cultivates some 3,000 acres of land, recently harvested fifty acres of barley, which it is reported averaged eighty bushels to the acre.

Irish Oats.—We were pleasantly reminded of the "old country" the other day by seeing a magnificent sample of oats brought to our office by a gentleman, who had just arrived from Ireland and brought the specimen to show Canadians what could be raised in spite of drought and adverse seasons; for crops of all kinds have been exposed throughout the whole of Great Britain to the same scorching ordeal that we have experienced in this country. Such, however, is the abundant moisture of the "Emerald Isle," that we are informed they have suffered less from the drought than the sister country; and certainly the sample before us speaks well for the fertility of the soil and the skill in culture that could produce so luxuriant a growth. The straw is between six and seven feet long, stout and strong in proportion, and the heads are heavy and well filled. The sample was taken from the farm of W. Watson, Esq., of Ballanrath, near Edenderry, in King's County, and was brought over by Mr. R. J. Tackabury. Mr. Watson, we understand, does not trust solely to the natural richness of the land on his estate, but makes a liberal use of manure. To produce like results, we must treat even the virgin soil of Canada on the same principle.

Rural Architecture.

Cheap Country House.

We again present our readers with a design for a country house, carefully and completely drawn, both as to elevation and plans, so that any good builder using the accompanying illustrations, as working drawings, could erect what would be allowed by most persons to be a very picturesque as well as commodious dwelling. We may state that a gentleman in England, wishing to put up on his estate a frame building such as we use in this country, selected this design for his purpose, and has had all the timber framed in this country and sent out, to be put up by a Canadian workman on its destined site. The architect, builder, and material are consequently all Canadian. The structure will present an unique appearance amid its English surroundings.



The design is adapted for a dwelling of more moderate cost than some of those that have recently appeared in this journal, and will doubtless be quite within the means of many of our farmers. It is very important in this country to secure in connection with a dwelling house plenty of verandah room, and large and airy apartments capable of easy and complete ventilation. During the recent sultry weather, every one who had an outside porch or verandah was certain to be occupying it in his hours of rest and leisure, and those who had not this luxury were disposed to envy their more fortunate neighbours, or at all events would mentally resolve that if ever they built a house they would have a verandah. These appendages, besides being ornamental and giving relief to plain walls, are pleasant as an out-door retreat in hot weather, serve to keep the interior cool, and will be found very convenient also in wet seasons, especially where there are children.

As the accompanying design was prepared for a country house, all these convenient arrangements have received particular attention, at the same time that economy in construction has been kept in view. By referring to the drawings it will be seen that the house is entirely surrounded by a wide and airy verandah, the roof of which is supported by light lattice posts.

The dining-room projects from the main wall, and is furnished with a bay window, where views can be had to the south, east, and west. The drawing-room, which connects with the dining-room by sliding doors, also projects, and is furnished with a bay window similar to that in the dining-room, looking north, south, and west. These rooms are each sixteen feet wide, and eighteen feet long, and furnished with fire-places. To the right of these rooms is a spacious hall, nine feet wide, running right through the house from back to front; in which are placed stairs leading to the upper rooms. Opposite the drawing-room is the library, also furnished with a fire-place. In the rear of the stairs, and opposite the dining-room, is the kitchen, connecting with the main hall by a short passage; and on each side of this is a pantry, one opening out of the kitchen, and one off the main hall. On the first floor—the chamber floor—there are five bed-rooms, and a dressing-room connecting with the best bed-room, and three wardrobes. The three principal bed-rooms are provided with fire-places. Although the upper story is termed a half one, the bed-room ceilings are ten feet high, and only a small part of the slope appears in the rooms.

The exterior will have a very pretty appearance, broken up as it is with projections, bay windows, verandah, and steep-pitched roof, &c. By lovers of the picturesque a house of the above description, situated on a fine smooth lawn, and surrounded with groups of shrubs and trees, would be thought the height of comfort and elegance. Such a house, though commodious and ornamental, need not be an expensive one. If properly built with timber, and placed on a brick or stone foundation, it would last for many years, and if due regard were paid to the selection of seasoned lumber, and properly plastering the walls down to floors, a warm and durable house would be the result.

It will be seen, by referring to the elevation, that it is the intention to build this house of timber, and framed in the usual manner, the sills of the frame resting on brick or stone foundations, whichever may be most conveniently procured in the locality. The outside will be sheeted with one-and-a-quarter tongued and grooved upright boards, and the joints covered with inch by three-inch batten. The interior can be finished to suit the tastes of those who may build.

Painting Buildings and Farm Implements.

Farmers should learn how to paint their buildings, tools and farm implements in a neat and workmanlike manner; and they may just as well do all their own painting and varnishing as to pay some painter twice as much as it is actually worth to perform a given job. In the spring, and during warm days in winter, and at any other season of the year, if a farmer has only a little instruction in preparing paint and putting it on, he, and those in his employ, may do all the painting, when they could do nothing else which could be of much account.

Farmers are quite apt to think that it requires a vast amount of wisdom and skill to prepare paint and put it on, and some painters like to make them think that it is far better to pay a very exorbitant price to a painter to have an implement painted than to undertake to do it themselves, and then fail. But there is no danger of falling in ordinary painting. Suppose the first, or even the second coat of paint be a little too thick or too thin when it is put on, after it is on it will preserve the timber just as well—which is the chief object in painting—and no one will care to know, so far as "looks" are concerned, after the implement has been used twice, whether a novice or an experienced workman painted it.

Common paint-brushes are made of the bristles and coarse hair of swine. The long bristles are assorted with no little care and judgment and placed by themselves, and those of a corresponding length are put in another place. They are then combed out, straightened, and fastened to the handles. For ordinary painting, those having the longest hair are preferable, and those brushes that are of an oval form are preferable to round ones. When the handles are round, it is best to flatten them a little so that the brush in painting will wear on two sides only. A painter can usually paint better with a brush of an oval form than with a round brush.

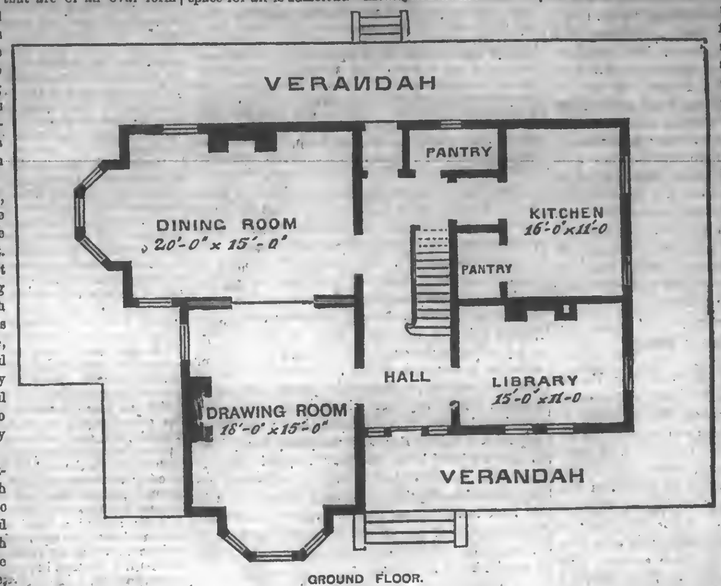
When selecting brushes, see that the handles are not loose, and that the hair does not come out. Brushes are liable to burst loose from the binding when they are bound with cord, unless the cord is well painted. Therefore, whether they are bound with cord or wire, they should have two good coats of paint applied to the binding before they are used.

Before using paint-brushes or whitewash brushes they should be placed with the hair end up and some good varnish poured down against the butt end of the handle, which will spread among the hair and become so hard in few days that the hair and handle will be so firmly united as to prevent the bursting of the brush or shedding of hair. By turning a teaspoonfuls of good varnish into a whitewash brush, and by giving the leather band a good oiling, its durability will be increased sometimes more than one-half.—*N. Y. Times.*

An Out-Door Cellar.

It is very unwise to store a large quantity of vegetables in the cellar of a farm house, even if it is of sufficient capacity. In the latter part of the winter there will be some decay, and nothing can be more detrimental to health than living over a mass of decayed vegetable matter. But few cellars are large enough to hold the products of the farm that requires winter storage. As we devote more attention to the economical feeding of stock, the necessity of good root cellars will be felt more seriously. Carrots, beets, parsnips, cabbage, and the like, require cellar room. A sandy hill-side is the best place for making a cellar, as in this situation good drainage is secured as well as easy access. A good cellar, however, can be made in any place where the water will not be within three or four feet of the surface. Especial pains must be taken to secure good drainage.

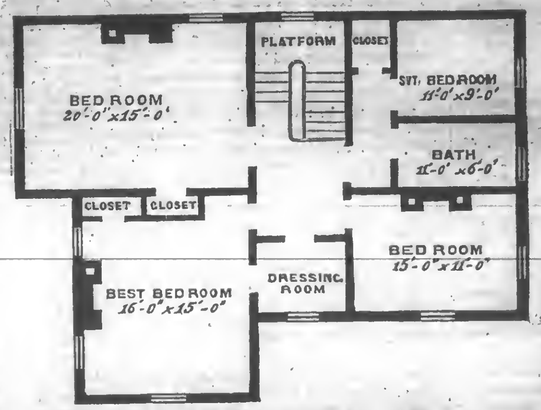
Dig down as far as drainage will allow, and throw the earth back to be used in banking up. If rough stones are to be had, they are the best for the walls; if not, posts and planks will answer. A strong ridge pole is necessary, which must be supported by posts. Bank up the sides with earth, and plank the roof, and cover with straw or leaves, over which rough boards, or something of the kind must be placed to prevent blowing off. An easy entrance should be made at the front by digging down the earth in a gradual slope; and as this part will be exposed to the weather, it should be double; and if of boards, filled between with straw. Where stone is used a space for air is sufficient.—*Michigan Farmer.*



GROUND FLOOR.

Railroad Doors for Barns.

These doors are far superior to the old-fashioned doors, which revolve on hinges. They are opened and closed by means of a rail and several small iron trucks securely attached to the top, and are so constructed as not only to close the door effectually against the ingress of rain, snow and cold air, but to be very durable and in every respect efficient. Large doors are formed by one inch matched boards, placed perpendicularly, and crossed by matched strips of the same in a diagonal direction, or from corner to corner on both sides. These strips are so put on as to represent the sheathing often seen on fine houses, being about six inches in width and covering the entire surface. It will be seen at once that three thicknesses of matched boards, securely nailed and thoroughly pinned, besides being so hung as to obviate effectually all possibility of sagging, as is the case with doors of ordinary construction and workmanship when hung in the usual way, must secure an article of great efficiency and of an almost indestructible character. The labor of opening and closing these doors may be performed by the merest boy, and in windy weather they are not slamming and endangering not only their own fastenings and fixtures, but the lives, also, of all by whom they are approached. The old fashion of placing the trucks at the bottom is anything but desirable, as the former is liable to become clogged by snow and ice; but when it is placed at the top, no obstruction can possibly intervene from this source; the door glides easily along the rail, and never requires to be forced open by main strength. Small doors for tie-ups, sheds, out-houses and other similar buildings, are constructed in a similar way. They are much cheaper than panel doors, to which they are preferable for all purposes where strength and durability are required.—*Cor. Ger. Tel*



CHAMBER FLOOR.

Choice of a Site.—This is a matter of no small importance, and should be well considered before commencing to build. With regard to the prospect, choose the spot for your future residence in dull weather. If pleasant then, it will be charming under a brighter sky. If possible, have at least a few trees ready grown about the place. Let the aspect be south; the level high, but not bleak and exposed. The conveniences for water supply, space for the necessary outbuildings, and ready access to road or other portions of the land, must all be taken into consideration. Look well beforehand. Do not build "in haste and repent at leisure."

The Oddities of Ownership.—Why do people call their residences by such strange names? Why should a brick cottage be called "Stonehenge?" or a little tenement in a shady street "Sunny Side?" Why are bold-looking edifices styled "retreats;" and places without a tree "the elms," "the oaks," or "the willows?" If Jones or Robinson, with the aid of a building society, erect a weather-board dwelling, why christen it "the rosary," "the bower," or "Mannerssutton villa?" Doubtless a lady who takes in boarders may with propriety call her residence "the lodge," out of compliment to her lodgers; but it is decidedly objectionable even for an Englishman to designate his abode a "castle," although the habitation of a Briton may be looked upon as such. A trip round the suburbs will amply illustrate the oddities of ownership, as almost every domicile passed has some queer name.

Stock Department.

Importation of Alderney Cattle.

Mr. Sheldon Stephens, of Montreal, has received advices of the shipment from London of a herd of Alderney cattle for his farm near Montreal. The herd consists of twelve animals—ten heifers and two bulls. Five heifers and one bull were selected by Mr. Henry Tait, Steward of the Home Farm at Windsor, from Her Majesty's herd of Alderneys. The remaining five, with a young bull, were selected by Mr. L. P. Fowler, Little Bushey Farm, Bushey, Herts. The herd before leaving England was much admired, and gave entire satisfaction to Mr. Tait and Mr. Fowler. The animals are described as being perfection in form, and of the best strains procurable. They were shipped on the *Kentiworth*, sailing from London on July 9th, and are expected early this month in Quebec. Mr. Stephens has also purchased some of Prince Albert's breed of pigs from Mr. Tait. We are glad to find Mr. Stephens vieing with his neighbour, Mr. Cochrane, as a breeder of improved stock, and hope the adjacent province of Quebec will yet give Ontario energetic rivalry in this line of things.

Large Merino Fleece.

The sheep department of the *Rural New Yorker*, (Hon. H. S. Randall, Editor,) is ecstatic over an extraordinary scoured merino fleece, the "largest on record," and devotes a column and a quarter to description and eulogy of it and the animal on which it grew. This fleece was one of several which were publicly sheared and weighed at an exhibition conducted by the Ontario and Livingston Counties Wool Growers' Association. It was the growth of eleven months and twenty-one days, grew on a three year-old ram, the weight of whose carcass, after shearing, was only 108 pounds, the fleece weighing twenty-four pounds when taken from the sheep, and nineteen pounds and three ounces after scouring. Mr. Randall says this fleece beats all other known fleeces by nearly, if not quite a pound, while the proportion of carcass and wool makes it still more decisive in superiority. He adds "this case is likely to become historic in the annals of sheep husbandry." The owner of the ram is Levi Noble, Junr., we are not informed of what place.

Cotswold Wool.—Mr. Geo. Jackson, Bloomfield Farm, near Wilmington, Del., writes us that four ewes he imported from Mr. F. W. Stone, Guelph, Canada, last fall, sheared 16 lbs. wool each in May. They are two years old. This is a heavy yield. They have grown very much and are fine animals.—*Co. Gent.*

Stock Purchases.—The Guelph *Mercury* mentions the sale by Mr. Joseph Kirby, of Esquesing, of stock destined for Nova Scotia. Mr. Roy, of King's County, in that Province, bought, of Mr. Kirby recently a Shorthorn bull calf and a heifer calf of the same breed; also a yearling Leicester ram, a Leicester ewe lamb, and a Cotswold ram lamb. Mr. Kirby has also supplied thorough-bred stock to purchasers from Quebec and the United States.

New Disease in Lambs.—The *Gardeners' Chronicle* records the appearance of a mysterious and fatal disease in lambs in one of the eastern counties of England:—"There is a large tract of fine alluvial land in one of our eastern counties, well drained, and lying under a dry climate, where sheep breeding has been followed for many years. The ewes are tupped and lambed upon old pasture, and the lambs suckled—and to a large extent also weaned—upon old pasture, the proportion of clover or two years' seeds being very small. Undoubtedly, lambs were a better business there at one time than they seem to be now. The losses are often excessively heavy, and the flockmasters can scarcely believe some of the hill-countrymen, who boast their large falls of lambs, carried through a summer without any serious difficulty from the all prevalent 'scouring.' Of late years ill-luck has visited particular neighborhoods, with what the shepherds, seeing it for the first time, suppose to be a new malady. Lambs at ten weeks to three months old begin to do badly; their fleeces look dry and 'penny,' and abound with ticks; they 'nab' or bite their wool; they suffer from obstinate diarrhœa; they die suddenly. In their stomachs are found large pellets of wool; in their small intestines are quantities of tape-worms. Last Monday, on a farm well known to us, a lamb died suddenly—so suddenly that it was found with its mouth full of fresh grass just as munched off the sward; the bowels were highly distended with gas; a large clot of wool had passed the first stomach, and the smaller intestines were full of tape-worms. Last year the same farmer lost more than twenty, and a neighbor of his lost more than fifty lambs, affected in this way."

Death of the Short-Horn Bull, "Duke of Bourbon."—We very much regret to learn that Mr. Snell has lost one of his prime bulls in the celebrated "Duke of Bourbon." This noble animal died on the 3rd inst., of Bronchial affection. He was bred by George M. Bedford, of Paris, Kentucky, and imported by Mr. Snell, when eleven months old, at a high price. He was the winner of the first prize at the Bourbon, (Ky.) County Fair as a Bull Calf in 1865, the second prize as a yearling at the Provincial Fair in 1866; the first prize as a two-year-old at the Provincial Fair at Kingston last year, and also the diploma for the best Durham Bull of any age. Besides these important premiums he won six first prizes at County and Township fairs. "Duke of Bourbon" was pretty deeply bred in the "Duchess" blood, and proved a good "getter," impressing his own characteristics in a marked degree upon his offspring. Mr. Snell has used him in his herd three seasons with very great satisfaction. He was a bull of very fine style, combining fineness of bone with sufficient substance, his weight at three years old being 2350 lbs.

An Important Discovery.—A writer in the *Quarterly Review* says that sheep draw from the land on which they graze a considerable quantity of potash, much of which is ultimately excreted from the skin with the sweat. It was pointed out by Chevreul that this peculiar potash compound ("suint") forms no less than one-third of the weight of raw merino wool; while, of ordinary wools, it constitutes about fifteen per cent. of the weight of the fresh fleece. As the "suint" may be extracted by mere immersion in cold water, it is easy for the wool manufacturers to produce more or less concentrated solutions from which the potash may be recovered by appropriate treatment. The development of the new industry is principally due to MM, Maumené and Rogelet, and their process is probably in operation at most of the great seats of the wool manufacture in France. The plan adopted by these gentlemen is a very simple one. They evaporate the solutions which are sent to them until a perfectly dry and somewhat charred residue has been obtained. This is placed in retorts and distilled, very much in the same manner that coal is distilled at gas-works; and the result is, that while much gas is evolved, which can be used for illuminating the factory, and much ammonia is expelled, which can be collected and utilized in many ways, there remains a residue, which chiefly consists of carbonate, sulphate, and chloride of potassium. These three salts are separated by the usual method, and then pass into commerce. Curiously enough, they are remarkably free from soda. The wool manufacturers of Rheims, Elbœuf, and Fourmies annually wash the fleeces of 6,750,000 sheep; and the amount of potash, reckoned as carbonate, which these fleeces would yield, if all subjected to the new process, represents a value of £80,000. But MM. Maumené and Rogelet calculate that there are seven times as many sheep in France as are included in the above estimate; and this will enable us to judge of the enormous loss in potassic constituents which the soil of an agricultural district has to suffer. The practical and very obvious moral supplied by these facts does not yet appear to have penetrated the mind of the British farmer. [Nor that of the Canadian or American farmer, notwithstanding the magnitude and value of the wool interest.—Ed. C. F.]

Veterinary Department.

The Hot Weather and the Health of Stock.

The present scorching hot weather, with the thermometer at ninety degrees in the shade, tells injuriously on the health of all domestic animals. Dogs lie panting, with outstretched tongue, happy if they live beyond the reach of Sir Richard Mayne, his meddling myrmidons, and his vexatious muzzles; like their masters they are averse to much hard work, seeking the cool shade, and enjoying the light drinkable fluids, but certainly less apt to take rabies than in the frigid weather of December or January. Sheep suffer from attacks of flies and from thirst; require as much attention to their water supplies as do cattle and horses; and six months hence will, we fear, in many quarters pine and die from the needful water now withheld.

Horses fully and readily knock up; the direct rays of the powerful sun falling on the head render megrims more frequent than usual; although we might suppose that weather of such Indian splendour would banish all colds and sore throats, we nevertheless find such ailments provokingly common; horses are overheated and exhausted; their skins are highly congested and their nervous energies prostrated, and thus predisposed, if they stand in draughts or are left out in the cold night air, they are just in the condition in which they are apt to catch a host of ailments. Again, from the tear and wear of the bodily structures, typhoid febrile disorders abound; and in badly ventilated, overheated, foul stables, glanders, farcy, and other diseases depending on special organic poisons are rife. Moreover, from the dry hardness of the streets and roads, and the number of loose stones which the heavy traffic is everywhere tearing up on the macadamised ways, horses are very liable to stumble, and we have never known, either in town or country, of such long lists of broken knees. Against such accidents the careful horseman will provide by keeping his horses well up to the mark, avoiding as much as possible heavy or continued work during the heat of the day, and lessening the jar on the legs and feet by having a band of leather or gutta percha nailed on between the bearing surface of the foot and the shoe; pulling up at short stages and allowing the steed a few minutes breathing time and a few swallows of water.

From the continuance of such hot weather the cattle suffer as well as the horses. Not only are the pastures bare and scorched up, and the stock reduced to very moderate rations of "roast meat;" the water supplies are also in many quarters getting short, the water is apt to be turbid and contaminated with organic matter, whilst troublesome flies prevent the poor things feeding or resting. The scarcity of natural food compels the grazier to purchase cakes, beans and other concentrated foods, which, being in such demand, have consequently become very dear. The free use of such food, coupled with the extreme heat, and probably also with a shortness and impurity of the water supply, has in Lincolnshire and elsewhere led to the production of quarter-evil and splenic apoplexy. The dry season, the scarcity of succulent food, and the restlessness of the cows, have diminished the supplies, and increased the price of all dairy produce. From the heat, and the cows galloping restlessly about, their milk is apt to undergo some prejudicial changes, and deranges the bowels of young calves. In some districts, owing apparently to the heat and state of the milk, we have seen cases of typhoid fever among the sucking calves.

In such cases the best arrangement is, if possible, to keep the cows in the house during the day, and only turn them out to graze in the night. The calves when scouring should at first have a dose of castor oil; along with their milk give them lime water. If the bowels still continue irritable, suspend the milk for several days, and feed on well-boiled wheaten flour and linseed gruel; sustain the strength by small doses of gin, whiskey, sweet spirit of nitric or other stimulants, and be particularly careful as to cleanliness. When the calves are attacked by typhoid fever, when the excretion becomes fœtid, the skin acquires a noisome, sickly odour, the belly is tender, and the little animal so weak that he cannot stand, good nursing, tonics and stimulants are the only remedial measures. He had better be removed from the healthy calves; placed in a cool, comfortable pen; have his bed made afresh twice every day; receive, especially when first attacked, occasional small doses of castor oil; twice daily with his food have ten grains of carbolic acid; instead of milk he will generally do better with boiled bread or linseed tea, given often, but in small quantities at a time; several times a day he will be benefited by a little tincture of gentian, ether, or ammonia.—*North British Agriculturist.*

The Dairy.

The Drought and its Influence on the Dairy.

We extract the following from the Utica *Weekly Herald* of the 28th July:—

We have now had several weeks of intensely hot weather, with no rain. Pastures are rapidly failing, and fears are entertained of a severe and long continued drought. We have advices from the western part of the State and from Canada, that the country is suffering from drought, and that the quantity of cheese has already been shortened up materially, and will be much less than last year in these sections. If dry weather continues much longer the amount of cheese made in New York will be very much less than was expected, and it was well understood, even under the most favourable circumstances, that it would be much less than last year. Under this state of things, prices for dairy products must without doubt advance. It will be remembered that cheese has gone off freely, and that there is no surplus in the country. We understand that every pound of the western product is needed west, and that none will reach the seaboard. The cheese made in the Eastern States will be mostly needed in the home markets, and the exports must come from New York and Canada. But a large share of the New York cheese must be kept at home to supply the Southern market and home demand. If we are to have a drought of long continuance, it is easy to see that exports must be cut short. As to the Canada market, it will not be any larger, and probably not so large as last year. We have a letter from a reliable and trustworthy friend, well posted in regard to the Canada product and the quantity on hand, which we give below. It will be seen that the Canada cheese has been already disposed of, while up to September last year it was all held in the factories. The New York cheese, so far, has been moving off at lower rates than the producer can well afford to make it. The question, therefore, for dairymen to decide is, whether under the present prospects an advance in price should not be demanded.

Our Canada correspondent writes from Ingersoll, C. W., under date of July 15, and gives the following:—

"The season to the 1st inst. has been very favourable, both for yield of milk and quality of cheese. We think the make much improved over last. There has been quite a falling off in the number of cows supplying factories, particularly in this section. The few new factories started will not make up for those that have stopped running. From the best information I can get, I think the make will be one-quarter less than last year. Cheese has been sold very freely from 8½c. to 9c. gold; at the latter figure everything that could be got is picked up. Buyers have been very busy the past two weeks, and have cleared out everything in this section fit to move. Mr. Webb, of New York, is, I think, the largest buyer; he has been operating through Mr. Casswell of this place. We have just sold about 700 boxes at 9¼c., the highest price yet paid. This was the only lot remaining unsold in this section. I believe the cheese is bought up all over Canada to the 1st ult. An intense heat and severe drought has prevailed since the 1st inst. The feed is drying up, and milk decreasing much more rapidly than last year. Should the drought continue, it must have a serious effect on the make of cheese. I do not know how far the drought extends, but the heat has extended all over the country."

Milk Fever.

The *North British Agriculturist*, in reply to a correspondent, gives the following directions for the treatment of Milk Fever in cows:—

"Milk fever abounds wherever cows, as in Ayrshire, are bountiful milkers; and great care is requisite to prevent serious attacks. Putting the animals on short commons, as usually recommended—or in popular lingo 'taking a stave out of their bicker'—for a fortnight or three weeks before calving will greatly lessen the number of cases. The reduction must be made alike in the quantity and quality of the food. Dry straw or poor hay is better than rich clover or succulent tares. A dose of physic repeated weekly for three weeks before calving is also a useful precaution; and in all such cases a full dose should further be given immediately after calving, unless, indeed, the animal will drink of its own accord, a bucketful of tepid water, in which a handful of salt has been dissolved. Adherence to a sloppy laxative diet for three days after calving will likewise be essential. The bag should be drawn once or twice daily for at least a fortnight before calving; and for a week after the arrival of the calf great relief will be given by milking four or five times daily. Fully half the cases attacked die—a strong reason for careful attention to preventive measures. Bleeding and a smart dose of physic so soon as the cow goes down is the best that can be done, especially if the patient is fresh. Fomentations along the spine, with the subsequent inrubbing of mustard, are useful. Hot cloths applied over the belly are serviceable in soothing, and also probably in expediting the action of the bowels."

Butter Making at Cheese Factories.

From the address of Dr. N. S. Townshend, delivered before the Ohio Dairymen's Association, we extract the following relative to the profits of butter making and milk condensing at cheese factories.

"If factories make only cheese, some of the valuable constituents of the milk will not be saved or utilized. However much you may desire to retain all the butter in the cheese, its complete retention is not possible, and in spite of your efforts, much will run off with the whey, which although not as good as first-rate butter made from cream, is yet better than much of the cream butter that comes to market; and if properly made it will gladly be purchased at a somewhat reduced price by families with whom economy is an object. Does any one dispute the possibility of making a fine butter of whey? Let me reply by saying that such have a pleasant and profitable lesson yet to learn. Of course the best butter may be largely made in factories whenever the price of butter is relatively higher than that of cheese, or whenever half-milk or skim-milk cheese is in good demand. We do not see why factories cannot, without injury to their reputation, of which they are properly very careful, make large quantities of half-milk and skim-milk cheese of a different form or style from whole-milk cheese, and supply the market with an article at somewhat lower price, much to the comfort and convenience of families that regard the highest price cheese as too expensive a luxury. This would enable factories to make a fine article of butter, and perhaps contribute to improve the butter making of the whole region. The manufacture of butter, whether in factories or private dairies, is not so purely a mechanical operation as some imagine, and therefore the purchase of the last patented churn is not all that is required. The time allowed for the preparation of the cream, the temperature for churning, the making, working and salting, all require great skill, and the perfection of that neatness so indispensable to the manufacture of good cheese.

Condensed milk has not yet been considered one of the common products of our dairies or factories; when it shall become such, one of the commonest objections to our factory system will be obviated, which is, that they do not use the milk for cheese making, either at the beginning or towards the close of the milking season. If our factories would learn the method, acquire the right, and obtain the necessary apparatus for desiccating milk, and adopt the practice earlier or later, then cheese making would be profitable, it would probably prove remunerative to the factories, and a great convenience to their patrons. Condensed or desiccated milk, which is the milk as it comes from the cow after the water is evaporated, with the addition of a trifle of carbonate of soda to prevent souring in the manipulation, and a definite quantity of pure loaf sugar, is the best substitute for fresh new milk that a family can have who do not keep and milk their own cow. During the recent struggle with the rebellion this article was largely supplied to hospitals for the use of our sick and wounded soldiers, and many a poor boy, whose cup of coffee was trimmed with it, could not tell that he had not been treated to cream from his own mother's pantry. In all our large cities, and even in the villages, how much safer and better to feed the babies on milk desiccated to its original consistence than to feed them on the queer compounds sometimes sold as milk. And even if one could always swear by his milkman, and feel assured that he sold nothing that was not milked from his cows, how much inferior the milk from cows fed on brewery grains or distillery slops to that of country cows, whose only feed is the fresh and fragrant herbage of upland pastures.

Curing Rennet.—Orrin Johnson writes the New Hampshire *Farmer's Record* about curing rennets. He says they ought never to be dried inside out. He adds:—"When taken from the calf, put a handful of fine salt into it, lay it aside for a week or more (no salt in the stomach), then stretch them on sticks, —they will not hurt—then stretch them on sticks, not turned inside out. When taken off the stick, see that both ends are tied or closed up tight. Keep a year's stock beforehand. I think one cured in this way worth two dried inside out."

The Apiary.

Industrious and Prolific Colony of Bees.

I have in my apiary one colony of bees in which I feel particular interest—first, from the fact that it has gathered more white clover honey than I have yet had gathered by one colony; 2. It goes to establish an opinion which I have some time cherished, that one great failure in non-swarmers is, there is not room enough for all the colony.

This hive has twenty-seven boxes, of an average capacity of about seven pounds, making an aggregate of nearly 200 pounds.

They now have fourteen boxes completed, except a few cells to cap. They have seven boxes nearly full, five in which they have commenced operations, and but one long empty box. To see one swarm filling the central apartment, and occupying and working in twenty-six boxes, and a few scattering ones gathering in the last remaining box to commence operations, exceeds anything I have ever witnessed before in my apiary.

It will be seen if this prolific queen had been in a hive of only two-thirds the room, with only eighteen boxes, a swarm must have issued from want of room. Seven or eight thousand cubic inches would be required for room for all her progeny.

Is this not one reason for the opinion that the Italians will always swarm? Are not the queens more prolific, requiring more room?

I should be pleased to show this colony, with its labors, to any friend pleased to call and look at it. I think they have now nearly 150 pounds of white clover honey. Jasper Hazen, *in Co. Gentleman.*

Fecundity of the Queen Bee.

In a paper read by Mr. Desborough before the Entomological Society, he makes the following extraordinary statement, to quote from the published report of the meeting:—"The author had succeeded in ascertaining that in certain cases the queen bee will survive and deposit eggs, during not fewer than six seasons, whereas the worker bees only live about eight months. A single queen had produced as many as 108,000 eggs, which would be about 20,000 a year; but the greatest amount of eggs was deposited during the first two years of her life, only about 15,000 being laid during each of the last three years." With regard to the longevity of the queen bee I have little to say, except that I do not believe, as a rule, her existence extends to more than four years. In all my experience I have never known the life of any to exceed that period of time. The workers may and do live about eight months during the late autumn, winter and spring, but on an average, during the summer, their lives do not exceed three or four months.

But it is with respect to Mr. Desborough's statement as to the fecundity of the queen that I must take entire exception. A healthy, vigorous queen, at the head of a strong and prosperous colony, in a well proportioned hive, instead of laying only 108,000 eggs in the course of her life of—according to the author—six years, will lay much nearer 100,000 eggs in one season. I have myself had hives, in which I have been quite certain that the queen has laid at least 70,000 eggs in a single year; and I have had and heard of other hives in which I have no doubt that the numbers far exceeded that amount. I have also had occasion to notice that the fertility of a queen is most abundant in the third season of her life, a great change for the worse taking place in her fourth or last year.

It appears to me most probable that Mr. Desborough has drawn his inferences from observations of a colony domiciled in a glass observatory hive. It must be obvious to every one that bees under such circumstances must be labouring under very great disadvantages; their energies are cramped in every way, and the breeding powers of the queen, as well as the working powers of the ordinary bees, cannot have full scope for their development.—S. Bevan Fox, *in London Farmers' Journal.*

Bee-Swarming Extraordinary.—A correspondent of the London *Free Press* mentions a singular case of bee-swarming that took place on the farm of Mr. Jno. Campbell, Ekfrid. The swarming took place as early as the 15th of March—fully two months before the usual time. Possibly, says the writer, the mild weather induced the emigration from the old hive to a neighbouring apple tree. This could have been no case of swarming. The bees must have left the hive for want of food, or some such cause.

Correspondence

Weather and Crops in Oxford--Hedges, &c.

To the Editor of The Canada Farmer:

Sir—"What short-sighted mortals are we." Allow me to illustrate the truth of the above quotation: In the middle of June last, when I was travelling through the country, the land had been inundated with floods, and everything saturated with constant rain; the growth of crops so luxuriant, (except where the land is low, and undrained) that farmers began to fear for the results. Cattle were in great demand to consume the enormous growth of grass; mowers and reapers were ordered with a recklessness never before witnessed, and harvest hands pre-engaged at very high wages, anticipating such a push and such a drive as is not often seen. Some said grain would never ripe; therefore could not fill—others said we could do without rain till after harvest and nothing suffer from the want of it. Oh! what a change a few weeks' dry weather has made: who could have believed then that in six weeks the earth would be parched, and that great abundance of water would so far disappear as to leave channels dry, and springs fall short of water?—such, however, is the case.

Still, barns are too few and too small to house more than two-thirds of the stuff grown. Hay was never better, either in quantity or quality. Fall wheat yields well to the acre, though not in proportion to the straw. It is shrunken considerably; all but the midge-proof varieties have suffered from the insect pest, some very severely. The barley has ripened too early; it is bright in color, but light in weight; still there will be a large quantity to ship. Early-sown spring wheat has suffered fearfully by the midge—I never saw it worse; in some instances it will not pay for harvesting and threshing. Late-sown will escape its ravages, but will not yield well, on account of the great heat and drought. Oats, for the same reason, cannot be heavy. Potatoes—where shall we find them? I hope some one will save seed to start with again. I have seen but one good field of turnips where sown on raised drills, but several on the flat system, which proves the best three years out of four. Apples are drying up on the trees, especially the Rhode Island Greenings. The blossom was very good everywhere, but the east wind prevented the forming of fruit, and there cannot be many, even of such as they are. The long grass which was rejected in June is quite acceptable now; and to keep up a supply of milk green fodder is used, and some are beginning to feed out hay. A good steady rain would still be valuable in starting pastures and root crops into freshness, but on account of the great scarcity of "hands" dry weather is desirable till the crops are secured; but both we cannot have at one and the same time.

Hedges—I would like to have written at length on this subject; but am waiting till I have visited the farm of Mr. Adamson, deputy-reeve of Durham, who has a fine specimen of hedge from the English hawthorn, capable of resisting any unruly animal, and only eight years planted. I am also glad to learn by your correspondent of Sylvan that he has succeeded in raising a good fence from the common thorn of the country (surely not the hawthorn, if the plants were gathered from the woods). From the appearance of the many hedges I have seen this summer, I am inclined to the opinion that the native thorn is the hardiest and best adapted for our use.

If the buckthorn is an "old favourite" of anybody's, I wish he would tell us how to make it impregnable to colts and calves. I have a great many rods seven or eight years old, which look well and have been well cared for all the time; but I had to erect a board fence along-side of it this summer to keep out cattle from my orchard. Those of my neighbours who have it, have done no better: it will not thicken at the bottom; and its prickles are so slight that a row of thistles make a better *fence*.

R. W. S.

Woodstock, July 27th, 1868.

Note by Ed. C. F.—The above communication was received too late for publication in our last issue.

Poultry Disease.—In reference to a recent communication under this head "Denizen" writes:—"In the Canada Farmer of July 15, W.C., Belleville, says he lost a number of fowls, and describes how they died. In an editorial note at the bottom you say "probably from poison." In this suggestion I agree with you. Near where my fowls are kept fly poison was used, and the fowls that consumed the dead flies are dead also."

Coal Oil for Insects.—A correspondent, over the initials T. B. S., who gives us in addition his full name and address, sends the following communication in reference to the use of coal oil to destroy insects. It seems evident that with some parties the remedy is effectual against insects and innocent in regard to the plants. The difference may be in the kind of oil used. T. B. S. says:—"I was much surprised to see articles in your issues of July 1st and 15th, warning farmers against coal oil as an insect exterminator, and though unaccustomed to writing for the press, I could not forbear giving you my experience in this matter. When the article which you copied from the *Gardener's Monthly* appeared, I had a bed of cabbage plants which were badly infested with flies. As I had not a watering can at hand, my method of testing the recipe was of the most primitive kind. Putting some water in an old tin vessel, and adding to it a little oil, I then took a wisp of straw, thoroughly mixed them together, and sprinkled the plants. In a few days an improvement was visible, after which the process was repeated, completely clearing the plants from their enemies without doing the plants any harm. I used about a tablespoon full of oil to one gallon of water. In these proportions, I am convinced that it will prove a safe and useful application for all the purposes recommended."

The Canada Farmer.

TORONTO, CANADA, AUGUST 15, 1868.

The Weather and Crops.

Since our last issue moderate rains have fallen in most parts of Canada, and some localities have enjoyed copious out-pourings. From a careful examination of a large number of harvest reports that have appeared in local papers in various parts of the Dominion, we are inclined to think that on the whole the crops are not so bad as it was feared they would be, in consequence of the excessive drought. Some places have suffered more than others, and there are favoured neighbourhoods that have not suffered at all. Hay and fall wheat were splendid crops, even where the drought has been the worst, and as more fall wheat than usual has been grown this year, it is fortunate that the season has proved so favourable for it. Of spring wheat we have diverse accounts. In some places it is a failure, in others half a crop, in others an average yield, and in a few cases, excellent. Peas, barley, and oats have, of course, felt the drought severely. So have potatoes. Turnips have borne the dry weather wonderfully, and the recent showers have greatly freshened them up. Should we have abundant rain soon, the bulbs will prove of good size, and the crop turn out as good as usual. We have had a lesson as to the value of summer forage crops for stock, which, it is to be hoped, we shall not soon forget. The pastures have been literally scorched, and only those who have been able to supplement them with cut feed have been able to bring their cattle well through. Fruit prospects are not so good as it was hoped they would be early in the season, owing chiefly to the ravages of insects. The experience of the present summer leads us strongly to urge on farmers, notwithstanding the discouragements of recent years, the expediency of sowing some fall crop, and especially winter wheat, that will be well advanced before drought can affect it.

"Farming for Boys."

Messrs. Ticknor and Fields, of Boston, have recently published a very entertaining book with the above title, written by the author of "Ten Acres Enough," a perusal of which has revived many thoughts we have had on the best means of inspiring boys with a love of life on the farm, and we purpose in this article at once to give some idea of the book in question, and discuss somewhat the general subject to which it relates. The author's object is the very laudable and important one of checking the tendency on the part of young men, born and brought up in the country, to make their way to the city for the purpose of seeking their fortunes, under the impression that agriculture is a dull, prosy, toilsome, and unprofitable occupation, and that comfort and wealth are not to be had in a rural sphere. He aims to show that it is a mistake to leave the green fields of childhood for the dust and turmoil of the city; that rural pursuits give scope for intelligence, are comparatively free from temptation to vice, bring a certain reward to well-directed industry, occasion less anxiety, and are every way favourable to the true advancement of mankind. The lessons which are sought to be conveyed are taught by means of an interesting story, the plot of which is laid on a neglected farm in the State of New Jersey, near the city of Trenton, and having, hard by, direct railroad communication with New York and Philadelphia. This farm is owned and occupied by one Philip Spangler, a sober, hard-working man, but of slovenly habits, ignorant, and wedded to old-time notions of agricultural management. Everything about the place is in disorder, there is no systematic management of farm work, no proper care taken of anything. The buildings, fences, implements, manure-heap, all give evidence of unthriftiness. There are three boys on the farm,—two young Spanglers and a hired or apprenticed orphan lad, named Tony King, whom Mr. Spangler has taken to teach—what he sadly needs to learn himself—how to farm. These boys have a hard life of it, being kept at work without intermission or encouragement, and never having a holiday, except when a rainy day makes out-door work impracticable, and takes Mr. Spangler to the country tavern, not far distant, to learn the news and discuss politics with his neighbours. In course of time, "Uncle Benny," an old gentleman, a distant relation of the Spanglers, takes up his abode at the farm-house. He is in all respects the very opposite of Mr. Spangler, well educated, orderly, prompt, systematic, thoroughly versed in the theory and practice of farming, and withal possessed of a very genial disposition, fond of young people, and anxious to make them happy. This wise and worthy old man soon acquires a great influence over the boys, and gradually wins even upon incorrigible old Spangler. He quickly sets himself at work to improve matters about the farm and farm-house, making a great change in the appearance of things in a very short space of time. He talks to the boys about the right way to farm, lectures in a familiar way about manures, drainage, and a variety of things, until the youngsters become quite enthusiastic and curious. He then, by adroit management, gets Mr. Spangler persuaded to "give the boys a chance," by allowing them to buy a pig and some pigeons, the money for which "Uncle Benny" advances; and also by obtaining two acres of land, which the boys are to work at odd times. The pig they buy is of the Chester County White breed. She brings them ten young porkers, seven of which they manage to raise. They start with several pairs of pigeons. Their land is manured, under "Uncle Benny's" directions, with all the odds and ends, the scrapings and refuse they can find, and planted to corn. A neglected briar patch on the farm, which had become a thicket of blackberries, and from the outer edge of which the family had been in the habit of gathering some fruit each year for domestic use, is

courageously attacked in berry time under "Uncle Benny's" auspices, and an enormous quantity of fruit gathered, enough to bring, when sent to market, *sixty dollars*. The old gentleman sees a mine of wealth in the briar patch, and gets Mr. Spangler's permission to do what he pleases with it. He invests the proceedings of the first blackberry gathering in getting openings cut through the jungle ten feet wide, which are thoroughly ploughed and harrowed, leaving the plot, some six acres in extent, in even rows of bushes. These rows are cultivated and manured. "Uncle Benny" does the planning and financiering, while the boys co-operate with him in the most industrious and persevering manner. Everything prospers under such wise management and diligent labour. Four of the young pigs are taken to the County Fair, where they win the first prize, and sell for ten dollars apiece. The pigeons multiply, and the increase are readily sold. The corn crop is abundant and remunerative. The corn land is planted to strawberries and raspberries, with single plants of sweet corn at such distances as to give a little shade to the strawberries and raspberries, without crowding them, and the sweet corn brings in enough to pay the outlay on the fruit plants. The six acres of blackberries yield four hundred dollars,—two hundred and fifty clear of all expenses. Thus the boys become successful fruit farmers, under "Uncle Benny's" tutelage, grow up to love rural pursuits, become reading, thinking, progressive young men; while old Mr. Spangler yields to the force of the practical logic brought to bear upon him, and improves vastly in his farm management. Comforts thicken and multiply in-doors as the progress goes on out-doors. The upshot of it is, that when a rich uncle of Tony comes along, and wishes to help his nephew make a start in the world, Spangler sells thirty out of his hundred acres, including the briar patch, so that Tony and the Spangler boys become next neighbours, raise fruit on a large scale, get on famously, while "Uncle Benny," when disabled by age, continues to be their "guide, philosopher and friend."

The above is a meagre outline of a well-told tale, which boys will read with as much avidity as the "last new novel," and which cannot fail to rouse them to self-reliance, and a laudable ambition to carve out success for themselves. Of course it is only in certain favoured localities, near large cities, that fruit-farming can be gone into on a large scale profitably; and the author of "Ten Acres Enough" is known to make fruit-farming a hobby; but the narrative we have outlined brings out principles of wider application, although the same brilliant results are not to be looked for in all conceivable circumstances.

It is a most important question—what can be done to interest our young folks in agriculture, as their future occupation? As an old lady, a farmer's wife, lately remarked to us, "The rising generation does not take much to farming." Many reasons may be given for this. But the main thing is to apply the remedy. And must not this be done very much by such means as are suggested by the foregoing narrative? If boys are kept on the farm as mere drudges, if they are made to toil mechanically, instead of being initiated into the whys and wherefores of what they do, if they have no opportunity for making a little money for themselves, if home is not rendered pleasant and attractive, if due provision is not made for occasional recreation, can it be wondered at that they regard the farm as a place of confinement, whence they make their escape whenever they find a chance of so doing? Let fathers act the part of "Uncle Benny" to their sons and daughters, and there would be less complaint of the tendency city-ward, of which we ever and anon hear so much. To sum up, we would suggest as likely means to induce a love of farm life in young people, the following things:—

1. That instruction be given in our country schools on the theory and practice of agriculture, especial pains being taken to explain principles, trace results to their causes, and waken intelligent interest in those natural processes and laws which have to do with successful culture of the soil.

2. That farmers aim to make home life pleasant, by surrounding their dwellings with some show of beauty, providing, as far as possible, in-door comforts, furnishing books and papers for their children to read, especially such as treat on rural pursuits, devising suitable recreations, and avoiding excess of work for young muscles and growing bones.

3. That instead of a constant fault-finding in regard to farm-life, which is too common, agriculturists learn to estimate their calling aright, to feel an honest pride in reference to it, and infuse into the minds of their children similar sentiments.

4. That personal interest be created in farm operations, by giving young people a plot of land, a young animal, a hive of bees, or something of the sort, to encourage and enable them to acquire and save a little money for themselves.

5. That by attendance at agricultural exhibitions, visits to the best conducted farms in the neighbourhood, and the establishment of Farmers' Clubs, at which interesting matters pertaining to rural life may be debated, the minds of young people be sharpened and stimulated toward improvement.

6. In a word, life on the farm, to be attractive, must be elevated and dignified, as it may easily be, so as to render a country home not only as delightful as a city home, but more so, because of those charms which invest nature, and never can be outdone by art.

We anticipate a great change for the better, when the generality of farmers' families are moulded under such influences and principles as those which are brought out in practical action, in the suggestive book for boys which has prompted this article.

Cattle Plague in the West.

An alarming disease has broken out among the cattle in the Western States. The earliest complaint comes from Indiana and Illinois, where the losses are already said to be very great. As the cause of the plague is said to be the importation of Texas cattle, no doubt the track of the plague must be a lengthy one on the plains. Texas droves commenced arriving about the first of May, and as they stopped at many places to graze, the native cattle contracted a disease, which for fatality is said to challenge the rinderpest. Wherever the native stock fed after the departure of the Texas cattle, death ensued usually in about five days.

In one county in Illinois, a writer shows that $10,000 worth of cattle had been skinned in fifteen days at the early outbreak of the pest, and it was spreading with such fearful rapidity that all medicines were abandoned. It chiefly attacked milch cows, and among them not a single instance of recovery was noted. In some communities, the people have been suddenly deprived of milk and butter. Vigilance committees are forming in the interior villages, and threatening to kill every Texas herd that comes within miles of the neighbourhood. At Kankakee, in Illinois, where the disease is raging, an indignation meeting was held, and the owner of a large Texas herd was threatened with its destruction if not removed immediately. The owner assured the committee that removal was then too late to abate the disease, and pacified the people by guaranteeing to make good the loss of all the cattle which should die of the disease in that neighbourhood.

A commission of medical men, appointed by the Pork Packers' Association of Chicago, have visited the points where the Texas disease has appeared, and will issue a carefully prepared report. They state that intense excitement exists in the afflicted localities, and vigilance committees are preventing the landing of cattle from boats or cars, or their passage through the country in droves.

In reference to the question, "what is the disease?" the *Prairie Farmer* of Aug. 6, says:

"We can only answer by giving the opinion of Professor Gamgee, who after a *post mortem* examination of several animals, pronounces it one of a group of inflammatory fevers, or blood diseases, called in England Anthrax Fever, in other places Black Water, from the colour of the urine; and from the resemblance of this one to that, he would suggest that it be called the Black Water of Texas."

The panic has reached Chicago, and the newspapers there say there is no further occasion for secrecy. The dreaded fever found its way into the stock yards, by means of a cow from the infected district, on Monday last, and the cattle dealers and public are in great anxiety. There are in stock yards about 5,000 head of native cattle, and some 4,000 head of Texas stock are herded outside. The fever had begun to spread, and several cases of death occurred in the early part of last week among cattle belonging to residents in the vicinity of the Texas herds. The authorities of Chicago are using every means to prevent butchers from buying any suspicious meat, and a thorough city inspection is demanded to prevent a frightful addition to the mortality list.

The stockyard drovers are offering to sell at ruinous prices, but cannot find eastern buyers. The plague will effectually stop the shipping north of Texas cattle for some time to come, and will perhaps force eastern consumers to other markets than Chicago for a supply. We see by our exchanges already an increasing activity among American buyers in Canada, which may be partially caused by the hesitation to purchase any more cattle from the west until the cattle plague panic subsides. Our Government should take immediate steps to prevent cattle being imported from the Western States into Canada until the pestilence has disappeared.

Food Prospects for the Coming Winter.

It is too early yet to speak very positively of the general yield of grain for the present season. Accordlog to the latest telegrams from Britain, the crop is represented as considerably above an average, both there and generally over Europe. We sincerely hope that such statements may be fully borne out; but there is not as yet sufficient evidence to that effect to set all anxiety on the subject at rest. It is notorious that such a drought, both for length and severity, has not been known in the United Kingdom for a very long time. Even 1826, which gives the nearest approach to it, will have to yield in this respect to the present year. The consequence of this is, that while the harvest has been surprisingly early in a good many places, it has been forced on to the great injury both of grain and straw. In some places the straw has been so short that it could scarcely be harvested; while in many more the grain has been quite scorched, and the hay crop is a failure.

The root crops have also suffered greatly, but only on certain soils. The whole system of husbandry in Britain so very much depends now upon the character of these crops, that any partial failure in them cannot but be widely and severley felt. From such considerations it may, after all, be matter of doubt whether there be such a superabundance in the grain yield as latest reports represent. In our own country it is very manifest that the hopes of a more than usually bountiful crop, generally and very naturally entertained about the beginning of the season, are not destined to be realized. There will be plenty for home use and a fair margin for exportation; but we very much doubt if the cheap loaf is to be among the notable advantages of the coming winter. The midge has been doing its work, and the long drought has also had its influence. Potatoes, we fear, will not now be greatly benefited by the rain, though were it to come immediately, turnips

might still feel the advantage. The crops in the States are on the whole good, so that while the food prospects may not be so bright as at some time they appeared, they are not as bad as they have been represented by some. France is not expected to need almost any importations this year, and the question to be determined is principally how much will meet the wants of Britain.

We can scarcely see that butcher meat can be anything but dear. From the enormous consumption, it can now never be spoken of in Britain as really cheap, and the restrictions lately put upon the importation of foreign cattle, along with the partial failure of the hay and root crops, will not allow the coming season to be much different in the matter of price from those which have gone before.

Tiptree Hall Farm.

The *Mark Lane Express* of July 13th gives a short but interesting account of a visit paid to the above named Farm (Mr. Mechi's), by deputations from the Midland Farmers' Club, the Farringdon Farmers' Club, and the Maidstone Farmers' Club. From the character of the soil of the county and the general healthy appearance of the wheat crops of the district, it was expected that the Tiptree wheat would present a very creditable appearance, but none of the members of the deputation were, we believe, prepared to see so much good wheat for the whole growth as Mr. Mechi showed them. The total extent of land in wheat is seventy-two acres, the farm comprising only 170 acres, of which thirteen are in pasture.

Mr. Mechi having stated at Birmingham that he had made eighteen per cent. on his capital of £16 per acre, and would have preferred to increase his capital to £25 per acre, was requested to give his opinion as to what per-centage he would obtain on this additional capital. Mr. Mechi, in reply, stated that last year he had to sell hay and straw, which, had the additional capital been forthcoming, he should have consumed with cattle, thus obtaining a much greater quantity of manure, both liquid and solid, and thereby increased fertility and yield. He considered, if he had employed £1,500 more, he should have made twenty per cent. on the whole capital:

A discussion then took place which elicited the general opinion, that to farm on the plan pursued at Tiptree was only practicable in connection with security of tenure and compensation to tenant farmers. Mr. Mechi, in conclusion, said that no doubt the main question involving investment of capital in the soil was security of tenure. He was decidedly in favour of a long lease, or an equitable tenant right. Long leases were impossible in all cases, and he thought landlords should be most particular in looking to character, conduct, improving business habits, and capital of tenants, and then bad farming would soon become the exception.

International Convention.

A convention of deputies from a large number of the States, as well as from various Provinces of the Dominion, has lately been held in Portland. The object of this assemblage was to discuss commercial matters in their bearing upon the intercourse between the States and Canada, and especially to consider what might be the most advisable course to be pursued in finding an outlet for the ever-growing products of the Great West. As might have been expected, the question of Reciprocity between the two countries came in for a large amount of attention.

Upwards of two hundred gentlemen were in attendance, and the convention continued its sittings for two days. The speaking was in general very good. Of course it was only what was to be expected that there should be some spread-eagleism, but even of that there was a great deal less than might have been anticipated. The whole affair passed off in the most friendly, satisfactory way. The kindest feelings for Canada and Britain were expressed by the various American speakers, and in the strongest manner everything was deprecated that could in any way interrupt the neighbourly good feeling which ought always to be cherished by the two nations. A series of resolutions was passed favouring a renewal of Reciprocity, and urging measures for the opening up of an International route, by way of the great lakes and the river St. Lawrence, as an outlet for the agricultural products of the two countries.

Parliamentary Documents.

We have to acknowledge receipt of the following publications:

Return to an Address of the Senate, dated 7th May, 1868; For correspondence between the Minister of Agriculture and Immigrant Agents in Canada and Europe, on the probable extent and character of the immigration of 1868; which plainly shows the need of a wiser and more efficient system of promoting an influx of population to this country.

Final Report of the Select Committee on the best means of protecting hemlock timber from destruction; from which it appears that wholesale spoliation of our hemlock forests is going on for export purposes, chiefly in the shape of extract to supply foreign tanneries, but to some extent in the shape of unmanufactured bark. Canadian tanners, with one voice, deprecate this, and ask for governmental interference either in the way of an export duty on bark and extract of bark, or absolute prohibition of exportation.

Report of Select Committee on the Cultivation of the Vine in Canada; a most important document, showing the adaptation of our climate to vine-growing, the excellent quality of Canadian wine, the profitableness of vine culture and wine-making, the disastrous effect of the Inland Revenue Act on the interests of the Canadian Vine Growers' Association, and the duty of our Government in regard to encouraging and fostering this branch of industry.

Fall Show.—The annual Exhibition of the North Riding of Oxford Agricultural Society will be held at Woodstock, on Monday evening and Tuesday, the 5th and 6th days of October next. A very large list of prizes is presented, besides about $250 in special prizes given by the inhabitants of Woodstock.

Substantial Recognition of Services.—An appropriation of $2,000 was made at the last session of the N. Y. Legislature for the benefit of the heirs of the Rev. Chauncey Goodrich, the producer of the Goodrich seedling potatoes. The heirs of Jethro Wood, the inventor of the cast iron plough, have received an appropriation from the Legislature of $2,000, in consideration of the services of their father.

A Good Idea.—The Vernon County (Missouri) Agricultural Society have resolved to substitute agricultural periodicals for diplomas as prizes at their coming fall fair. Foreign and costly journals that would be interesting and suggestive to the class of farmers who are likely to take premiums, might advantageously be put on the prize list, it being certain that they take their own local agricultural paper.

Samples of Grain.—We are glad to find that notwithstanding the severe drought, there seems to be plenty of good grain in the country. Early in the month we saw standing spring wheat of excellent quality, not only with the heads well filled, but to our surprise with straw of fully average length. Many of the farmers we meet with speak of average grain crops, in spite of all the disadvantages of the season. Fall wheat in many instances has been especially good. We have before us excellent samples of more than one variety. The Diehl wheat in this neighbourhood seems to have endured the winter, escaped the midge, and yielded more abundantly than other varieties. Mr. Springer, of Hamilton, as we noticed in our last issue, has raised a good crop of this wheat, and advertises the produce for seed. Mr. James McNair, of Richmond Hill, has a quantity of the same promising grain. The estimated yield of both these parties was over forty bushels to the acre, but the crops were not threshed out at the time we saw the samples. The Messrs. Atkinson, of Etobicoke, after threshing out the produce of two acres of the same variety, obtained one hundred bushels, or fifty bushels to the acre. The quality of all the samples is first class; and we recommend a trial of this winter wheat, especially where the soil is sandy loam, which seems well suited to the crop.

Literary Notices.

Farming for Boys.—Boston: Ticknor and Fields, p.p. 286. We have to acknowledge the receipt of this work from the publishers, and for a more extended notice of it refer our readers to an article which will be found elsewhere in the present issue.

The Little Corporal.—This charming juvenile monthly maintains its high character as a repository of "the good, the true, and the beautiful." An article on the "Wild Flowers of August," which we have copied into our Horticultural department, will give a taste of its quality. Published by Alfred L. Sewell, No. 6 Custom House Place, Chicago, Ill. Price $1, American currency, per annum.

"Sterility is Laid."—A pamphlet of twenty-three pages, containing an address delivered before the Bedford (New Hampshire) farmers' club, Feb. 28, by John A. Riddle, Esq. This address briefly expounds and warmly eulogizes Prof. Ville's new system of agriculture, with which our readers are doubtless familiar, it having been fully explained in the columns of the Canada Farmer.

The Farmer's Gazette and Industrial Index.—This is a new monthly, published at Richmond, Virginia, chiefly in the interest of agriculture, but as its double name denotes, having an eye also to mechanical and other industrial pursuits. Judging from its initial number, it seems likely to be ably conducted. It is, however intensely *Southern*. Having occasion to quote Henry Ward Beecher, it takes care to say "We have no affiliation with him, theological or political." In its "Salutatory," while eschewing party politics, it promises "never to lose sight of the fact that "*the white man must own and govern Virginia*;" and hopes the time is nearer than some think "*when the place that once knew Coffee shall know him no more forever*."

The Prairie Farmer.—We have been rather tardy in noticing the change of form which has recently taken place in this journal, but our delay has not been owing to want of interest in our far-Western contemporary. Its entrance on a new volume at the beginning of last month was made the occasion for altering it from a quarto of sixteen pages to a double quarto of eight pages, very similar in size and general appearance to the *Rural New Yorker*, which journal it now resembles also in combining literary and miscellaneous contents with the agricultural and horticultural. The conductors of the *Prairie Farmer* state that after many years' experience they are convinced that a paper strictly devoted to the farm and garden is not so well suited to farmers and their families as one more general in its character. The new issue is a very handsome-looking sheet, and we doubt not will be conducted with all the ability and tact for which it has been heretofore distinguished.

Analytical and Practical Grammar.—Toronto: Adam Miller, p.p. 240. This is a new treatise on English Grammar, which has been prepared under the sanction of the Council of Public Instruction for the province of Ontario, and forms one of the Canadian series of National School Books. It is on the basis and plan of Bullions' works, but with alterations and additions designed to render it more suitable as a Text Book for general use. The phraseology has been adapted, as far as practicable, to that employed in the authorized Latin Grammar, so as to facilitate the work of the pupil in passing up from the Common to the Grammar School. Exercises in analysis are interspersed throughout the entire work, instead of being confined to a particular portion or section. In the Syntax Department, examples of false syntax are omitted, the editor not approving of that method of instruction. A limited number of examples are inserted in an appendix. We disagree with the editor in his objection to examples of false syntax, and think many more will do the same. An appendix on Prosody has been taken from Dr. Collier's English Grammar, and free use made of the best modern works in this important department of knowledge, so as to render the volume as complete as possible. This grammar is intended for pupils who have mastered the Introductory Grammar already in use in our public schools.

The Canadian Entomologist; No. 1, Toronto, August 1, 1868.

We have much pleasure in acknowledging the receipt of the first number of this little periodical, which is issued by the Entomological Society of Canada, under the editorial management of the Secretary, Rev. C. J. S. Bethune, M. A. It is intended to serve as a medium of intercommunication among Entomologists in Canada, and enable them to tell one another "what they have taken, how and where they have taken it, and what they are in want of;" it is intended also to contain original papers on the classification, description, habits, and general history of Insects, the transactions of the Society, and other matters of interest to those engaged in the study of this branch of Natural History.

The first number opens with a few introductory remarks relating to the objects and scope of the periodical; this is followed by a notice by the Editor of a very remarkable "Luminous Larva," which he describes as appearing in the dark "ringed and dotted with greenish fire," and presenting a singularly beautiful appearance. The next article is entitled "Entomological Notes, Paper No. 1," by Mr. W. Saunders of London. It contains an account, with full descriptions, of the larvæ of several species of butterflies and moths reared by the writer. This valuable branch of entomology, though requiring close attention and unremitting care, and hence commonly neglected by insect collectors, is, we understand, a speciality of Mr. Saunders, and one in which he has obtained much success. This is followed by a short notice of a "New Fluid for Preserving Larvæ, etc.," prepared by Prof. Verrill, and which is expected to prove of great value to naturalists. The report of the annual general meeting of the society recently held in London,—a notice of which has already appeared in the Canada Farmer,—and some lists of specimens for exchange, complete the contents of this number. This periodical, though small and unpretending, will no doubt prove of value to Canadian students of Entomology, and will, we trust, ere long fulfil the hopes of its projectors, and "by and by grow and increase, and acquire goodly dimensions, and become a handsome and valuable exponent of the progress of Entomological science in this Dominion." We beg to commend it to the favourable notice of our readers, and trust that it will be well sustained and supported; while we desire at the same time to congratulate the Society on the enterprize and zeal they have shewn in its publication. The importance of entomological knowledge is becoming every year more manifest, and no class of men are more interested in its progress than farmers.

We may mention that it is issued gratuitously to members of the society, and at the rate of fifty cents per volume to non-members; communications to be addressed to the Rev. C. J. S. Bethune, Credit.

Agricultural Intelligence.

Royal Society's Exhibition at Leicester.

To the Editor of The Canada Farmer:

Sir,—The Royal Show at Leicester has just terminated, and has proved a signal success. In consequence of the cattle disease, no horn cattle were exhibited at Bury St. Edmonds last year, and for the same reason no show at all was held the previous year. Leicester, however, has now amply made compensation for all these drawbacks, and the exhibition just closed, in whatever aspect it may be viewed, is regarded by all with pride and admiration. Although I spent upwards of a week on the trial grounds and in the show yard, I feel myself incompetent to send you a full report of this splendid display of Agricultural, Horticultural and Mechanical skill and industry, and the limits of a single communication will only admit of a very summary view of some of the more salient characteristics. I hope, however, to be able hereafter to use certain portions of the memoranda I have made, for the information of your readers and the improvement of the working of our Societies in Canada.

The grounds selected were most conveniently situated, close to the Town (the race course), and would, had it not been for the severe and protracted drought, have been covered by a thick and elastic sod, a condition so conducive to the comfort both of animals and visitors. Upwards of fifty acres were enclosed by a high boarded fence, so that ample space was provided for the vast and increasing wants of the Society. About five miles of shedding, covered by canvas, forming wide streets in straight lines, were provided for animals and implements. These sheds were of good width, and divided into compartments called stands, of various lengths, hired by exhibitors, in which to arrange and display their different productions; some with only a few articles would occupy a correspondingly small space, while larger exhibitors would require several hundred yards. It will give your readers some idea of the magnitude of the show when I state that in live stock there were 335 exhibitors and 994 entries. In the implement department there were 307 exhibitors and 6352 entries. The catalogue of Agricultural implements and machines, including some other things of a mechanical character, forms a closely printed octavo volume of more than 400 pages. It is, I believe, universally admitted that on no previous occasion have the arrangements in all their multiform details been so perfect; and the result has been a degree of harmony in the working of this huge and peculiarly complicated machine, never before attained in the annals of the Society.

It has been for some years the practice of the English Society to give no premiums for implements and machines without testing them in the field. The kinds of implements for trial this year were those used in the cultivation of the soil; such as steam and horse ploughs, sub-soil ploughs, scarifiers, harrows and rollers. Mowers, reapers, &c., though exhibited in large numbers, received no attention from the judges, but will be subjected to a practical test next year, when they will be eligible for premiums.

This field-testing of implements has now grown into great magnitude, and is a very onerous task. The Society hired a farm for one year from last autumn, nearly two miles from the show ground, at a rent of £1500, for this purpose. As nothing had been done with the land since last harvest, except a slight scarifying of the surface in a few of the fields, the stiffer portions of the farm were as dry and almost as hard as a macadamised road, putting even the steam ploughs and cultivators to the severest practical test. These trials commenced on the 9th inst., and terminated on the 15th. The show yard was opened on the 16th at a fee of five shillings each person, when the judging, which was open, was completed, and the animals and articles obtaining prizes were ticketed. Admittance on the 17th and 18th was half a crown, and notwithstanding vast numbers during these three days entered the grounds, there was no crowding, but every one had the most ample opportunity of examining in detail whatever he desired. The 20th and 21st were shilling days, and notwithstanding the vastly increased number of visitors, the facilities for inspection were not seriously diminished. The attractions were so equally distributed over extensive and well arranged grounds, that overcrowding, for any length of time at least, in particular places, was obviated.

The testing of the steam cultivating apparatus naturally attracted more than ordinary attention. The competition rested between the following firms:—Messrs. J. Fowler & Co, Leeds; Messrs. J. & F. Howard, Bedford; Messrs. Aveling & Porter, Rochester; Messrs. Parker & Sons, Andover; and Mr. G. Hayes, Stony Stratford. The ground being so excessively hard, considerable time was occupied in getting the machines into proper action; the anchors in different parts of the field would be now and then drawn out, and it soon became evident that great power and the strongest machines only would be adequate to the occasion. Fowler's ten horse power double set of hauling apparatus, working their cultivators and harrows, was certainly very effective, as was also a plough moved by a similar amount of power, made by Messrs. Aveling & Porter; which some considered did the best work as a mere plough. Howard's proved itself fully adequate to the occasion, and its operations were watched with much interest and satisfaction. The land on which steam power was brought to bear was in such a condition that horse power in no way could be applied. The prizes offered by the Society for steam cultivation were pretty equally divided between Fowler and Howard, both of whom exhibited and put in motion traction engines of considerable power. The display of steam engines adapted to cultivation, locomotion, threshing, &c., was very large, and comprised specimens of the best workmanship. Steam cultivation in England is no longer an experiment, but has become an every-day fact. As to its general adaptability and profitableness even in this country, more time and data are required before we can reach an absolute conclusion. I heard it stated that the Viceroy of Egypt had awarded a piece of plate, of the value of £200, to Messrs. Fowler & Co., for the strongest steam cultivating apparatus adapted to foreign countries, where serious repairs cannot be readily made. The state of the ground where the horse ploughs were tested was something better than the before-mentioned, but it was painful work to the animals. In this department the Messrs. Howard took the lead, very closely followed by Messrs. Ransome and Sims. Hornsby, Cooke, Bentall, Crosskill, Cambridge, and others whose names I cannot now recall, received either prizes or commendations for ploughs, harrows, rollers, &c. Although there was but little absolute novelty, it was universally admitted that both in quantity and quality the mechanical department this year has far outstripped any preceding exhibition of the Society.

In the live stock department the show fully maintained the high character which the Society has for many years attained. For horses the Royal has never been eminently distinguished. How this is I have not heard satisfactorily explained. The Yorkshire Society in this respect usually excels it. This year 167 horses of all classes were on exhibition, and certainly the beauty and high breeding of most of them gave to this department of the show a large amount of interest and attraction. The blood stallions were pronounced by competent judges to be on the whole of excellent quality, and were judged with special reference to their capability of getting good hunters. Leicester is situated in one of the very best hunting districts of England, and this class of horses is in much request, and have long enjoyed a high character. "Lady Derwent" exhibited at the late Islng-

ton show, where she won the £50 prize and a gold medal, deservedly obtained here the first premium. In symmetry and action she appeared to have reached almost absolute perfection. The cart horses were select, comprising several breeds and crosses, but there were a few weedy specimens that ought, perhaps, not to have been brought forward on such an occasion. The Suffolks, although not large in number, were of very superior quality, and they continue to occupy in England, for agricultural purposes, a high position.

The display of cattle, both as to amount and quality, must be regarded as a remarkable success. The fearful ravages of the plague only so recently arrested, with the present widely extended drought, must have prepared people not to expect too much. Nevertheless, it is very questionable whether this important department was over exceeded on a former occasion. It is true that there was an absence of a few distinguished breeders in several of the classes, but this was quite compensated by others infusing a fresh life into the proceedings. The Shorthorns were, as usual, in great strength. Mr. T. C. Booth, of Warlaby, obtained the first prize of £25 for his four-year old bull, "Commander-in-Chief," a large and symmetrical animal. There was a very fine young bull from Ireland, 14 months old, "Bolivar," that deservedly attracted much attention and won the first prize. The cows and heifers presented many specimens of great size and beauty, and this may also be said of the yearlings. The animals in this and other classes were generally in excellent breeding condition, not so fat, I think, as has been too commonly the case.

The Herefords did not muster strong, only thirty-six entries, but these comprised several animals never, to say the least, previously excelled. The Devons considerably exceeded in number the former, and bore evident marks of high breeding. They were exceedingly pretty, some a little too high perhaps in condition, and evinced a tendency to diminution in size. In the Sussex, a breed very analagous to the Devon, there was an absence of competition; only five animals were exhibited, but these indicated properties of a high order, showing that this breed, confined within narrow limits, deserves more attention than it has hitherto received. The animals attain to a much larger size than the prevalent rule of Devons, make excellent beef, and are said to be unsurpassed in the yoke.

The Alderneys or Jerseys, commonly called Channel Islands, were in great force, and comprised a number of superiorly bred animals. Great improvements have been made of late years in this breed, which is in much request among gentlemen for domestic dairies. I am told it is now just possible, when these animals cease to be useless for the dairy, to make them ripe for the butcher. I did not observe a single specimen of the Ayrshire. There were several excellent specimens of the Norfolk Polled, and a few others of analagous character; also some half dozen Longhorns, of great size and considerable symmetry, but evidently slow feeders. What a striking illustration was here of Bakewell's immortal success with Leicester sheep, and his equally remarkable failure with the Longhorns!

Of the Sheep department, no other words but those of commendation, or rather admiration, would be at all appropriate. The Leicesters appeared not only in large numbers, but with all the improved characteristics of that world-renowned breed. How different do these animals appear to what frequently pass muster in Canada as Leicesters! The Southdowns were perfect beauties, and Mr. Rigden's shearling ram, which gained the first prize of £20, reminded me of an observation made by a distinguished Devon breeder some years ago in reference to the late Mr. Webb's sheep, that "the breeding seemed to be carried to perfection." Lord Walsingham, the Duke of Richmond, Lord Radnor, and others, exhibited animals in this class of extraordinary excellence. The Shropshire Downs appeared to much advantage, and are steadily making their way in several parts of the country; and the same may be said, though perhaps in a somewhat modified degree, of the Oxford Downs, of which there was quite a number of characteristic specimens of the improvements recently effected. The Hampshire Downs, though generally good, were not so numerous as at previous shows; while the Cotswolds, as a class, it was thought, scarcely came fully up to their usual high standard of excellence, although there were several specimens in the yard that certainly had never been surpassed. Mr. Brown's shearling ram, which won the first prize of £20, and others that might be mentioned, were superlatively good. I must not omit to say that though the improved Lincolns did not appear in large numbers, they fully maintained the great reputation they have recently acquired; but they are in general appearance so much like the modern Leicester that ordinary observers scarcely detect any difference.

Several lots of sheep among the different breeds were disqualified on the ground of not being shorn in accordance with the regulations, and other circumstances. This disqualification was extended to pigs in a few instances, their dentition indicating a greater age than that for which they were entered. To expose and prevent frauds of this nature, the Society employs the most vigilant means, as also in relation to the soundness of horses. All animals of which the shadow of a doubt exists, are thoroughly examined by the Society's Veterinary Surgeon, who devotes much time and attention to this important and necessary duty. The display of pigs, both as to number and quality, was quite equal to former occasions, which is saying a good deal. They were classified as small and large black or white breeds, the Berkshire being separate. Other breeds, not included in the above, were put into a miscellaneous class.

Throughout the stock department animals possessing remarkably good points, although failing to obtain prizes, were distinguished by cards having printed thereon in large letters "commended" or "highly commended," a principle recognised through every department of the show. In live stock also the judges placed on the next best animal to the one obtaining the lowest prize, a card printed "reserved number." In case of any one of the prize animals being subsequently found disqualified, the one receiving the "reserved number" would be awarded a prize. This, I was informed, had been found to work well in practice. Another commendable feature of this exhibition arising from the admirable arrangements, is the full opportunities of inspecting whatever one feels a particular interest in. The stalls and spaces are ample, no overcrowding, and the horses and horned cattle, whether they have taken prizes or not, are publicly paraded in the order of their number in their respective classes each day of the show; the public being notified of the hours and other particulars by hand bills, day by day. The carrying out of the details of such an enormous exhibition with so high a degree of precision and dispatch, requires much time to prepare the regulations, and a large outlay of money, patience and perseverance in their practical application. We should do well in Canada to keep the example of the English Society steadily in view, and follow it as far as circumstances will render practicable.

During the show, I had the pleasure of accidentally meeting two Canadians, Mr. John Miller, of Ontario, and Mr. Simon Beattie, of Quebec; others may have been present, but I had not the good fortune to fall in with them. These gentlemen were in quest of breeding stock suitable to Canada, and I parted with them attempting to negociate for a shearling Cotswold ram, the asking price of which was one hundred guineas! First class animals are held in England at enormously high rates.

The Royal Horticultural Society of London, held for the first time last year a country exhibition at Bury St. Edmunds, at the same time and place as the Royal Agricultural Show; and the success which attended the experiment induced the Horticultural to do the same this year at Leicester. Several acres of the ground adjoining the Agricultural show yard were fenced in, and extensive shedding and tents were erected for the exhibition of fruits, vegetables and flowers. The arrangements, like those of its twin sister, were most ample and complete, and the whole display had a beautiful and artistic effect. Many of the choicest exotics from London and the gardens of the nobility and gentry of the midland counties graced the scene, which was on the whole of unrivaled magnificence. In such a season of drought, I could hardly believe my senses that such splendid specimens in the various departments of horticulture could be produced. It is truly pleasing to see these two great national societies working together in harmony but independently, and both in this instance with the most gratifying and successful results.

Speaking of horticulture, I may just mention that while strolling one evening along the banks of the Soar, immediately close to Leicester, I was induced to enter the precints of what once was a magnificent Abbey—founded in the 11th century. The outer walls are in excellent condition, enclosing a space of forty acres, now used as a nursery. There are some fifty acres devoted to the same purpose outside the walls, and the manner in which these beautiful and hallowed grounds are kept, and the healthy, growing state of their productions, reflect great credit on the taste and skill of their enterprising proprietor. It was here that Cardinal Wolsey, in troublous times, while on his way to London, took refuge and died, and his ashes repose beneath the fragrance and beauty of trees and flowers. What remains of the ruins of the Abbey proper are clustered with ivy and other creepers to the very top, while the extensive old walls are covered by the choicest varieties of fruit trees. What lessons does such a scene teach! I could not help thinking that if the disembodied spirits of those whose feet centuries since trod this sacred enclosure, were cognisant of what is now doing in this lower world, they would not regard the gardener's operations, at least, as a desecration; for the Monks, despite the abuse which it has been too much the fashion to heap upon their memory, were in their day not only the great conservators of sacred and clerical learning, but foremost in the improvement of agriculture, gardening, and the useful arts of life; the testimony of which is so frequently present in these British isles.

The drought still continues in almost unmitigated intensity, though heavy rains have recently fallen in some parts. Last Saturday the first shower fell, worthy of the name, that I have seen since my arrival in England. Harvest operations are now become general, and wheat is the only good crop which the farmer will this year gather. The harvest is full three weeks earlier than the average of seasons. I have not heard the amount taken at Leicester for admissions to the show, but it will prove, no doubt, unprecedentedly large. I am now on my way to the Highland Society's show at Aberdeen.

GEO. BUCKLAND.

Shrewsbury, July 22, 1868.

Imports and Prices of Wool.

The *Economist* (New York) states that the imports of foreign wool at New York for the first half of the calender year are only about half the quantity and value of those for the same period of last year. "For the first six months of 1867 we imported 13,000,000 lbs. valued at $2,233,000, against 6,700,000 lbs. this year (1868), valued at $1,105,000. The decrease has been principally in the arrivals from England, the Argentine Republic and Mexico, while those from Russia have been doubled. The abundance of the home crop, especially in California and Texas, has limited our wants for foreign descriptions." The leading item in the table given for 1868 is the Russian wool imported, amounting to 3,122,013 lbs., of the value, as entered, of $570,765.

The *Economist* also adds the following statement of the current value of domestic wools, as compared with that of two years ago—before the passage of the present tariff:

	June 10, 1868.	July 6, 1866.
Am. Sax'y fleece, per lb...	60@65c.	50@55c.
Do. full blood Merino....	52@56	50@57
Do. ¾ and ¾ Merino...	46@50	45@50
Extra, pulled.....	42@40	55@60
Superfine, pulled.....	42@48	47@53
No. 1, pulled.....	30@36	38@45
California fine, unwashed.	28@32	33@38
Do. common, do....	22@25	20@25

A subject for the Chamber of Agriculture.—According to *The Coventry Standard*, "a landlord in Mid-Warwickshire refuses to let his tenants use mowing machines, lest they should injure the game!"

☞ During last year over half-a-million of money—£540,884—was transmitted to Ireland from America by omigrants to their friends—£202,914 of the sum being in the form of prepaid passage orders.

Grapes along the Lake Shore.—M. B. B. writes the *Ohio Farmer* that grape prospects all along the Lake Shore region continue very good, though considerable damage was done to the vines around Sandusky by the storms last month. The dry, warm weather for some time past has been favorable to the growth of the vines and fruit. It is added that the prospects for peaches and apples in Lake and Ashtabula Counties are quite fair.

Abolition of Toll-Gates.—The Perth County Council, at its late sitting, adopted a report of a committee recommending the throwing open of the toll-gates on all the public roads in the county. The ground taken for this movement is, that it will be much better to build and keep in repair the public roads in the county directly by public funds, and thus save the expense of keeping up gate houses, and paying the salaries of gate keepers—each gate costing probably from $300 to $400 for keeper's salary, and building and repairing houses. The *Free Press* hopes the Middlesex County Council will adopt a similar course, which would result in a saving to the tax-payers of that county of not less than $50,000 a year.

Cloth Manufacturing in Australia.—Manufactures in Australia are gathering strength. A woollen company, which has gone recently into operation, has now nearly 5,000 yards of cloth made, comprising the kinds called "tweeds," "meltons," "diagonals," "stripes," "hair lines," &c. These cloths have not yet been sent into the market, as the company intend to accumulate 5,000 yards, for the production of which a premium of £1,500 was offered by the Government some time since, and claim the money, before they appeal to the cloth-consuming public for support. The finished products of the factory are of many different patterns, serviceable and lasting, as they consist wholly of good sound wool. With its present resources, the mill will turn out, when at full work, about 1,500 yards of cloth a week, and consume 1,820 lbs. of washed, or 2,880 lbs. of greasy wool.

The Muskoka District.—The Orillia *Expositor* thinks its Muskoka friends have taken an excellent plan to bring the capabilities of the District under the notice of settlers. They will issue, in a week or two, a pamphlet showing fairly the advantages possessed by the Territory, and also its drawbacks; and as quite a number of these are to be scattered throughout this Province and the old country, we may expect a large influx of settlers to the district during the coming fall in consequence. The resources of the district only require to be more generally known to have all the good land it contains taken up. The pamphlet is being printed for the "Muskoka District Settlers' Association," which has already done much to advance the interests of Muskoka, and remove the erroneous impressions which have been made on the minds of the people of many parts of the Province by the false statements of those who have had only a glance, and perhaps not even a glance, at a small portion of it, and then reported they "have been in Muskoka, and found no good land worth mentioning—nothing but rocks!" Parties wishing for reliable information concerning the District should adress the courteous Secretary of the Association, J. B. Browning, Esq., Bracebridge, who will be always found willing to reply to their enquiries. Pamphlets forwarded to any address on application to the Secretary.

Close of the St. Thomas Flax Mills.—The operations which were carried on in this town for several years have been brought to a close, and in common with many others in the country, the St. Thomas mill is lying idle. This is owing to several causes, but chiefly to the decline in the price of cotton. During the American war, when the supply of raw cotton was difficult to obtain, and English factories were turning out scarcely half the quantity of previous years, the manufacture of flax was found remunerative, and in this country several enterprising firms were found to engage in it. Foremost of these were the Messrs. Perrine, who at one time, we believe, had not less than twelve mills in various parts of the province. In connection with Mr. Alexander Young they began operations here about four years ago, and being well patronized by the farmers of the district, who entered heartily into the culture of the flax crop, they had the prospects of establishing an excellent business. The farmers, finding the crop a paying one, were eager to continue it, and were ready to supply whatever quantity was needed. The decline of prices in the manufactured article, however, made it imperative on the part of the millowners to close the business, and thus a valuable and very important branch of industry, not only to the neighbourhood but to the country, is brought to an end. During the four years the mill was in operation here, the money paid out in the purchase of raw material and running expenses ranged from $10,000 to $25,000 yearly—giving employment to thirty men and as many boys in the fall, and upwards of twenty hands the rest of the year—*St. Thomas Journal.*

The Raspberry in Quebec.

To the Editor of The Canada Farmer:

Sm,—Several communications I have lately seen respecting the alleged want of hardiness in the raspberry, induce me, with your permission, to venture a few words of encouragement to any who may be hesitating as to the possibility of their cultivating in Canada the finer varieties of this delicious fruit. To such, then, I would say, it is not because you are located far to the north that you will not succeed. On the contrary, living near the City of Quebec, I never fail to have a most beautiful crop. Last winter was the most severe experienced here for many years, the thermometer sinking to 37° below zero, and remaining near about there for days together. It has been followed by a most scorchingly hot, dry summer, yet my bushes are fairly loaded down with large and delicious fruit, and not of the common kinds, but of the, so called, tender Antwerps. From my experience with this berry, I have thought that it cannot be merely the cold which injures them, but, possibly, rather the alternate freezing and thawing which they are exposed to in milder countries. I have cultivated here yellow Antwerps for the last fifteen years without experiencing any difficulty; and six years ago, wishing to try other varieties, I procured a few bushes of "Red Antwerp," "Franconia," "Falstoff" and "Victoria." They have all flourished; but the Red Antwerps produce so much the best and largest fruit, that to me the others are valueless.

My mode of cultivation is simply this:—About the middle of September, select a spot where a goodly supply of snow is sure to lodge early in the fall (no difficult matter here), manure the ground heavily by digging in decayed stable manure, plant in rows about three feet apart, plants about eighteen inches asunder in the row, and shortly before the first fall of snow, throw over them any refuse straw or branches. We find potato stalks and spruce boughs excellent. These will gradually bend the plants towards the ground, the weight of the snow will assist, and in the spring they will come out ready to send a leaf from every bud. I had omitted to say that, after planting, I shorten the canes to within less than a foot of the ground. Succeeding springs, I merely take off a few inches from the tops. The Red Antwerps, with me, average from five to six feet high. We train them to horizontal strips of board, placed between each second row, on stakes about three feet high, bringing two rows to meet to one board, and leaving thus an alley between each second row. I find it essential to tie them up in this way, as, if not done, the weight of the fruit brings them flat to the earth, soiling and spoiling the berries. We top-dress well with decayed stable manure and ashes every spring, and again as soon as the fruit is gathered. Treated this way, a very small patch will supply a very large family, and will last without replanting or changing the location for an indefinite number of years. Even without any covering except the snow, very good crops can generally be had; but a few branches or potato stalks cost very little trouble, and insure a large yield, and by bringing the canes evenly and gradually to the ground, prevent their being broken.

As I said, I have yet found no variety to equal the Red Antwerp; but Mr. Beadle's letter, in your last number, has given me an inclination to try what could be done here with the "Hornet," for, so far, I have had no necessity to look for the *hardiest*, but simply for the *best* and *largest* raspberry. As to productiveness, they all produce about as many berries as you could by any possibility stick on the bushes.

F. W. A.

Quebec, Aug. 6th, 1868.

Wild Flowers of August.

BY MARY LORIMER.

It is now August; sultry, midsummer August. There are not as many flowers to be found as in the earlier months. The waxen May-flowers, and frail Anemones, and many delicate vernal blossoms have folded themselves away to sleep till next spring. But there are many beautiful flowers in August. I hope my young friends have found and faithfully pressed many a wild flower, and have become so in love with the charming and healthful pursuit as never to give it up.

In July I found forty-five wild flowers, and I hope you found several, and that among them were the six varieties of the pretty Silk Weed, or Milk Weed. The species called Tuberosa is the most brilliant orange, and the Quadrifolia is remarkably pretty, with balls of pale, pink flowers.

You must find in August the handsome Orchis family. The white orchis is lovely, and the Purple Fringed Orchis is superb, with its elegant, fragrant blossoms.

The Wild Lilies are a gorgeous family, from the fiery red, single lily, growing so freely in the woods, to the graceful buff yellow, where twenty delicate bells often tremble upon one stalk.

The yellow and purple Gerardias are found in August; these you can never transplant with any success, because they are what is called parasitic plants, and so is the Scarlet Tipped Painted Cup. Of these parasitic plants I must tell you at some other time, and also of the beautiful air plants, which grow and blossom on a stick of wood, or piece of cork; and require no earth.

Do find the rosy-purple Rhexia or Meadow Beauty, and the flower of Parnassus, the large, white petals, veined with delicate green lines. Above all, look sharp for the superb Cardinal flower, that marvel of brilliant carmine color, though you will not have to look very sharp, for you can see it from afar. It seems to light up the damp nooks by the brooksides, where it loves to grow.

The ferns, too, are beautiful in August, and the trees are full of interest; every tree having its own peculiar way of growing. How wonderful this is; a Maple spray will never grow like an elm spray; each knows whether the leaves must come out opposite on the branches, or alternate, and they never make a mistake.—*Little Corporal.*

Horticultural Single-Tree.—Our correspondent, D. B. Weir, of Lacon, Ill., has furnished us with one of his new whiffle-trees, made expressly for working among young fruit trees, orchards, &c., which we find accomplishes the intended object in as perfect a manner as anything of the kind we ever had the pleasure of thoroughly testing. The leather traces are let out in length a few inches, so as to pass around the end of the implement and hook in the rear. They are secured in their position, so as to extend beyond the ends, and to render it impossible for anything but the leather to touch the tree. We have used it both with a single horse, and with a double team in full ploughing. We requested our ploughman to see if he could not rub off some of the bark of the trees, but he asserted it to be impossible, exclaiming, in his own vernacular, "This is the biggest thing out!"

In cultivating orchards of many hundred standard pear trees—the rows being planted nearer one way

than the other—we had previously found it impossible to run much nearer than two feet to the rows, leaving a strip nearly four feet wide unploughed. This was afterwards finished, with a good deal of difficulty, by the use of a single horse. Now, by the use of Wier's Single-tree, placed on the right or left of the evener, according to the direction of the furrow, whether from or to the trees, the whole work may be neatly accomplished at one operation. If the trees are near together, it will be most convenient to finish with the one-horse plough. As the new single-tree is short and light, it is necessary to have another equally light to balance it, when using it with two horses. We think that all orchardists, who desire to keep their grounds in a neat and finished condition, without resorting to hoeing or spading in the rows, will be gratified in procuring this new contrivance. —*Country Gentleman.*

A New Mulch for Grapes.—A correspondent of the *Country Gentleman* speaks very highly of leached ashes and cut grass as a mulch for grapes. First mellow the soil; spread the grass several inches thick; sprinkle with water, and apply the ashes. Grapes thus treated have grown luxuriantly all through the recent drought.

Quick Growth.—"The new early peas, 'Ringleader,' sown on the 12th of February, were this week harvested, fully ripe, at Messrs. Sutton's farm, London Road, Reading." So says the *Mark Lane Express* of July 1st. This would be deemed terribly slow growth here, and may illustrate the difference between the British and Canadian climates.

Entomology.

Exhibition of Insects at Paris.

An exhibition of a novel and interesting character is to be held during the present month in the Palais de l'Industrie, at Paris. It is to be confined entirely to Insects in their practical relation to Arts and Agriculture, and is intended to include the illustration of the propagation of useful insects, methods of curing or preventing disease, and economical management, and the history of destructive insects, with means of counteracting their ravages. Noxious insects are to be classified according to the plant on which they feed, and not according to their scientific order. The exhibition is to open on the 1st and close on the 31st of August, and is under the management of Dr. Boisduval, M. Guerin-Menoville, and other entomologists and scientific agriculturists. The following are the principal heads of classification:—First division—Useful Insects. 1st class.—Silk-producing insects. 2nd class,—Insects producing honey and wax. 3rd class,—Insects used in dyeing and for colour. 4th class,—Edible insects, crustacea and mollusks. 5th class,—Insects employed for medical use. 6th class,—Insects used as ornaments. 2nd division,—Destructive insects. Ten classes, comprising those that attack cereals, the vine, plants used in industry, forage, vegetable and ornamental plants, fruit trees, forest trees, timber used for building, truffles and fungi, dry organic matters, and, lastly, parasites of man and domestic animals. The third division comprises three classes, carnivorous and parasitic insects—those that destroy chrysalids and insectivorous animals, birds and reptiles. Fourth division,—Insects and other animals destructive of mollusks, and notices respecting edible snails (!) and the benefit that cultivators may derive from them. Fifth division,—Optical instruments for entomological purposes, and special apparatus connected with the rearing or destruction of insects. Printed or written memoirs are also to be admitted, even without specimens of the insects to which they refer. It is also intended that there shall be conferences during the exhibition on various subjects connected with entomology. Such an exhibition, if well carried out, must surely be productive of great benefit to the agricultural interests of France, and might well be imitated elsewhere.

Specimens reared from Larvæ or Pupæ.

From time to time we have endeavoured to rear specimens that have been sent to us, in order to discover what their perfect state is like, and thus learn their name and whole history. To obtain satisfactory results is by no means an easy matter, as a day's neglect will often prove fatal to the caterpillar, and this, from want of proper food, or absence from home, cannot always be avoided; some, too, dry up during the winter, and never emerge from their pupa state; and others are destroyed by parasites. The following is a brief account of our limited success:—

Strawberry Worms.—In last year's volume (C. F. Aug. 1, 1867, p. 238; do. Oct. 15, p. 311) we referred to some specimens found feeding on strawberry-leaves, and sent to us by Mr. Arnold, of Paris, Ont.; these we have entirely failed in rearing, much to our disppointment.

Fall Web-worm on Apple Trees.—Last year we received some caterpillars from a correspondent at Halloway, County of Hastings, which we stated were specimens of this insect; these we fed for some time, till at length they turned into the pupa state, enclosing themselves in a slight hairy cocoon. On the 20th of June, 1868, a moth emerged from one of these cocoons, and during the following week many more came out; they were all, as we expected, specimens of the Fall web-worm (*Hyphantria textor*, Harris) and were the first that we had ever seen. We also raised some specimens of the same insect from caterpillars infesting our own trees. Last year we stated that "they have not, that we are aware, been before recorded as occurring in this country;" we have lately been informed by Mr. Saunders and Mr. Reed, of London, Ont., that they have known and reared the insect during two or three years past, though they never recorded its occurrence. During the last few days we have noticed the webs of this insect upon our apple trees, this being the time of year when they first make their appearance; we would strongly recommend our readers to look over their orchards and cut off and destroy any of the webs of these destructive creatures that they may find.

Balsam-fir Saw fly.—The correspondent mentioned above also sent us some cocoons of the larvæ that he found injuring his Balsam-fir trees (C. F. Aug. 1, 1867, p. 238; do. Sep. 2, p. 269). From these only one solitary specimen has come out; it is a black-bodied saw fly with beautiful iridescent wings, but we have not yet determined its name.

Promethea Emperor Moth.—In our issue of the 15th of June of the current year (page 172), we noticed the receipt of two singular cocoons from a lady at Mimico, and we gave an illustration of the large moths we expected them to produce. About ten days after the publication of our notice, two handsome female Promethea moths emerged from the cocoons, similar to the lower figure in our illustration; they now form fine additions to our collection.

The Wheat Midge.—In June last we received a lump of clay filled with orange larvæ from Mr. Belch, of the *St. Mary's Argus*, and in our issue of the 1st of July we published Mr. Belch's letter, with the result of our examination of the specimens, stating our belief that they were the larvæ of the wheat-midge. During the succeeding fortnight an immense number of the winged midge emerged from the clay, and, being unable to escape through the gauze lid of the box in which they were enclosed, almost covered the surface of the clay with their dead bodies. We hope to hear what effect they had upon the crops in the neighbourhood from which our specimens were brought, but we fear that the account will not be a very cheering one.

The Privet Sphinx Caterpillar.—In our last issue we noticed the receipt of one of these caterpillars, and stated that, to our surprise, it had gone thus early into the chrysalis state, from which we did not expect it to emerge till next year. To add to our surprise, on the evening of the 8th of August, we heard something flying up and down our study, which, at first, we took to be a bat, but as the noise of its wings was "wish-a-wish-a-wish" instead of the "flitter-flutter" of a bat, we knocked it down, and found it to be a fine moth (*sphinx cinerea*) which had come out of the above mentioned cocoon.

Chad Fly.—We have received, but not in time for more than this acknowledgement, a communication from Mr. Tait, of Boverley, accompanied by a specimen of a singular and "ferocious" looking insect. It is the Chad Fly. We have placed the specimen in the hands of our artist, and hope to give an illustration and some account of the species in our next issue

The Household.

Drowning.

In a recent number of this journal we gave a few "hints for emergencies." We propose occasionally, without repeating the heading, to add such suggestions as may appear useful and seasonable, as a guide to the inexperienced. Among the most serious accidents, in connection with which any of us may be suddenly called upon to render aid, there is one that has become recently very frequent, and in which assistance is too often speedily unavailing—the accident of drowning—an instance of which is recorded in nearly every newspaper that we open.

In these melancholy catastrophes, unless the unfortunate individual is quickly rescued from his peril, there is very little hope of restoring animation. A few minutes' complete submersion under water is sufficient to extinguish life. And yet, as we every now and then hear of well attested instances of resuscitation after a comparatively long submersion, it is well, when there is any ground for hope at all, to use every means in our power to recover the drowned. One chief reason of the discrepancy of statement that we have met with in regard to the length of time that a person may be submerged and yet recover, is owing to the different modes of death in drowning. In some instances the person faints almost immediately on the occurrence of the accident; and in these cases animation may be suspended for a much longer period, without proving fatal, than when no such arrest is given to the full activity of the vital functions, and suffocation, neither modified nor complicated, is the cause of death. The appearance of the face will often indicate whether fainting occurred or not. In some drowned persons the countenance is remarkably pale, in others it is livid and swelled. The first would most probably be the result of syncope or fainting, and would leave more hope of recovery than the latter appearance. Still, after five minutes of complete and uninterrupted submersion, very little expectation could be entertained of restoring the breathing and animation.

In the treatment of drowned persons, the greatest gentleness and care should be observed. It is a common opinion that the lungs are filled with water, which is the chief cause of suffocation, whereas usually very little water enters the lungs, the spasmodic effort caused by the contact of water with the glottis preventing the entrance of fluid into the windpipe. Nothing is more foolish, therefore, or more likely to do harm, than the practice of holding the drowned person up by the heels, or with the head in any way low, or rolling the body about, or any other of the rough usages resorted to, with a view of emptying the lungs of water. There are three principal objects to be kept in view in our treatment of the drowned. First, to restore the breathing—Second, to restore or keep up the animal heat—and Third, to rouse dormant animation by stimulants.

The two first objects should, as far as practicable, be attended to immediately; the wet clothes removed, and dry blankets or dry coats substituted; but no time should be lost in the first and most essential part of the treatment, namely, efforts to restore the breathing. First try the following plan. Place the patient on the ground with the face downward, and one of the arms under the forehead, in which position the tongue will fall forward, so as not to obstruct the entrance of air, and fluid from the mouth and throat will naturally escape. If breathing does not immediately commence, move the body on the side, a little over towards the back, apply hartshorn, snuff, or tickle the throat with a feather, and dash a little cold water on the face. If these measures have no effect, replace the patient in the former position, with the face downwards, supporting the chest upon a folded coat or other garment. Then turn the body back again gently on the side, and a little beyond. Repeat these movements carefully and perseveringly, about fifteen times in a minute, or once in every four or five seconds. The reason for these movements is, that the first or prone position forces the breath out of the body, the weight of the body being on the chest; this weight is removed by turning the body on the side, and air will naturally tend to enter the chest. The effect is increased by making uniform and brisk pressure with the hands on the back, between and just below the shoulder blades, while the body is placed face downwards, removing the pressure completely or turning the body over on the side. One person during the whole time should gently support the head, and keep the arm under it when the face is turned down.

Another method which may be resorted to, if the preceding measures do not in the course of five minutes seem to have any effect, is that recommended by Dr. Sylvester. Place the patient on the back, with the head higher than the feet, and support the head and shoulders on some kind of cushion or pad. Draw forward the tongue and keep it projecting beyond the lips. Remove all tight clothing from about the neck and chest, not omitting the braces. Then placing yourself at the patient's head, grasp the arms just above the elbows, and draw them gently and steadily upwards above the head, and keep them thus stretched up for two seconds. This is done to draw air into the lungs. Then turn down the patient's arms, and press them gently and firmly against the sides for two seconds, to force out the air. Steadily repeat these movements, alternately, about as often as those recommended previously, namely, fifteen times in a minute. As soon as any spontaneous breathing is induced, let these efforts be at once discontinued, and proceed to keep up the warmth of the body.

Should the foregoing measures seem unavailing, attempts may be made to restore the breathing by insufflation of the lungs with a pair of bellows. The nozzle of this is to be inserted into one nostril, the other nostril and the mouth being closed. The projecting cartilage of the throat is also to be pressed back while air is introduced. To expel the air, pressure is made with the hand on the chest and abdomen. These movements should be repeated as before, with about the frequency of natural breathing. The treatment should be persevered in for several hours if necessary.

At all times it should be remembered that the free access of pure air is indispensable, and all unnecessary crowding round the patient should be avoided. To promote warmth, wrapping the body in warm blankets, friction with dry and warm flannels, the application of bags of hot salt, bran, or the like, are the readiest means to be resorted to.

As soon as respiration is sufficiently restored, small quantities of wine, brandy and water, or warm coffee, may be carefully administered.

Washing Windows.

A correspondent of the *American Agriculturist* gives the following improved mode of washing windows, which, although not wholly new, may be valuable to many of our readers:

"The nicest article for washing windows is deer skin, as no particles come off to adhere to the glass and make it look as if washed with feathers. There is no need of anything larger than a hand basin for washing windows. The great splashing some people make in the exercise of their art is entirely useless, and is, moreover, deleterious. When the water is permitted to run down in great quantities upon the glass, it dissolves the putty and soon loosens the panes from their setting, and also stains the glass. Two pieces of nice wash leather and a bowl of suds are all that are necessary. Wipe the glass first with the wet cloth or leather, and after it has become dry rub it with the clean cloth and it will look clear, and far more so than if rinsed with a dozen pails of water."

☞ In a class of little girls in one of the schools of Boston, the question was asked, "What is a fort?" "A place to put men in," was the ready answer. "What is a fortress, then?" asked the teacher. This seemed a puzzler, until one little girl of eight summers answered, "A place to put the women."

Poultry Yard.

Chickens Dying in the Shell.

Everybody does not keep poultry, everybody will not, but many people do. We are beset with letters asking why chickens die in the shell instead of emerging from it; why hens do not bring their chickens off punctually. We answer all their questions with another: Do you moisten your eggs yet? If you do not, there is the cure for all your troubles, the solution of all your difficulties.

Partridges, Pheasants, and Grouse seem to be more successful at hatching than our domestic fowls that have all known "means and appliances" to boot. The truth is, their eggs are thoroughly wetted twice every day. At morning and evening the hens leave their eggs to feed; they go in among the damp grass covered with dew, and come back wetted through, especially on the breast that is immediately in contact with the eggs. The hen does not even shake herself before she sits on them. Every egg is well soaked, and the moisture penetrating to the membrane lining the inside of the shell keeps it soft; whereas, especially in this dry and hot weather, if the hen is merely taken off her eggs for half an hour, and they are not moistened, the membrane becomes as dark and tough as india-rubber. The chickens cannot get out. For a full week before hatching time, when the hen leaves her eggs, dip your hand in water, withdraw it while streaming, and wring it over the eggs.—*Journal of Horticulture.*

Imported Eggs.—For the encouragement of those who contemplate importing eggs from England for the purpose of hatching, we are able to state that a gentleman in Montreal obtained this season, from three dozen of eggs supplied by Mr. Cooper, of Limerick, twenty-two strong healthy chicks. A long railway journey seems more destructive to the vitality of eggs than a voyage by water. Where parties have the opportunity, we would recommend eggs being sent by water as far as possible—by the lakes rather than the rail.

Egg Story.—A student at one of our military academies had copied a drawing of a scene in Venice, and in copying the title he had spelt the name of the city *Vennice*. The drawing-master put his pen through the superfluous letter, observing, "Don't you know, sir, there is but one *hen* in Venice?" On which the youth burst out laughing. Being asked what he was laughing about, he replied he was thinking *how uncommonly scarce eggs must be there*. The master, in wrath, reported him to the colonel in command, a Scotchman. He, on hearing the disrespectful reply, without in the least perceiving the point of the joke, observed, "An' a varra natural observation too."

Advertisements.

THE BRIGHTEST
ITALIAN QUEENS
IN AMERICA.

HAVING IMPORTED three extra-fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale, price as usual, $5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. B. hive $15—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS,
Apiarian,
Brooklin, Ontario.
Aug. 1, 1868. v5-15-tf.

GEO. A. DEITZ,
The Great Seed Wheat Grower,
CHAMBERSBURG, Pa., sends free a Descriptive List of the best Seed Wheats in the world. v5-11-6t

Duncan's Improved Hay Elevator.
PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.
JAMES W. MANN,
v4-20-tf Port Dover, Ont.

Paxton, Tate & Co., Port Perry, Ont.,

Manufacturers of the
MARSH HARVESTER!
AGRICULTURAL IMPLEMENTS
of all kinds,
STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,
MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.
Port Perry, March 23, 1868. v5-7-tf

EXECUTOR'S SALE.

Valuable Farm for Sale
BY AUCTION.

WILL BE SOLD BY AUCTION, AT THE
"DALY HOUSE," INGERSOLL,
On Wednesday, Sept. 2, 1868,

AT ONE O'CLOCK, P. M., that valuable Farm, being Lot No. 21, 3rd Concession of Dereham, containing **100 ACRES**, situated five miles from Ingersoll—the property belonging to the estate of the late William Scott.

☞ Terms made known at time of sale, or on application to the Executor or Auctioneer, Ingersoll P. O.

JOHN MARKHAM, Executor.
JAS. BRADY, Auctioneer.
Dereham, July 30, 1868. v5-15-2t.

The South Grenville Agricultural Society
will hold the
ELEVENTH ANNUAL EXHIBITION,
AT PRESCOTT,
on
Wednesday, Thursday, and Friday, Sept. 30, Oct. 1 & 2, 1868.

WM. TRACY, Secy. and Treas.,
Prescott, August 1, 1868. (V5-15-2t) *pro tem.*

MILLER'S
INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.
v4-14-tf

DIEHL WHEAT.

THE Subscriber has for sale a quantity of DIEHL WHEAT at $2 per Bushel.

LEWIS SPRINGER,
Hamilton, Ont.
v5-15-4t.

PROVINCIAL EXHIBITION

OF THE

AGRICULTURAL ASSOCIATION

OF

UPPER CANADA,

TO BE HELD AT HAMILTON,

On the 22nd to 25th September, 1868.

PERSONS intending to exhibit will please take notice that the Entries of articles in the respective classes must be made with the Secretary, at Toronto, on or before the undermentioned dates, viz.:

Horses, Cattle, Sheep, Swine, Poultry, on or before Saturday, August 15th.

Grain, Field Roots, and other Farm Products, Agricultural Implements, Machinery and Manufactures generally, on or before Saturday, August 29th.

Horticultural Products, Ladies' Work, the Fine Arts, &c., on or before Saturday, September 12th.

Prize Lists and Blank Forms, for making the entries upon, can be obtained of the Secretaries of all Agricultural Societies and Mechanics' Institutes throughout the Province.

HUGH C. THOMSON,
Sec. Bd. of Agriculture.

Toronto, July 21, 1868. [v5-15-2t

NEW ZEALAND!

THE undersigned having been appointed Emigration Agent at Toronto for the Province of Auckland, New Zealand, is prepared to give free grants of land (40 acres to adults, and 20 to those over 5 and under 18 years of age) to those intending to settle in that healthy and beautiful country.

Information may be obtained on application to Dr. Riddel, 217 Queen Street East. Letters must be prepaid, and contain return stamps.

A. A. RIDDEL.

Toronto, August 11, 1868. v5-16-1t

FRUIT AND ORNAMENTAL TREES

FOR FALL OF 1868.

WE have the pleasure of announcing that we are prepared for the Fall Trade with an unusually large and well grown stock, embracing

Standard and Dwarf Fruit Trees.

Grape Vines, new and old sorts, strong open ground plants.
Currants, Raspberries, Blackberries, and all the small fruits.

ORNAMENTAL TREES AND SHRUBS,.

Roses and Flowering Plants of every description.

Nurserymen, Dealers, and others, purchasing largely, will be dealt with liberally, and all orders, however small, will receive prompt and careful attention. Parties interested will do well to consult the following Catalogues, which are just issued, and will be sent pre-paid on the receipt of 10 cents. each, for Nos. 1 and 2, and 5c. for No. 3.

☞ No. 1, Descriptive and Illustrated Catalogue of Fruits. No. 2, Descriptive and Illustrated Catalogue of Ornamental Trees, &c. No. 3, Descriptive Green House Plants. No. 4, Wholesale Catalogue, FREE.

ELWANGER & BARRY.
v5-17-4t. MOUNT HOPE NURSERIES, ROCHESTER, N. Y.

SHORT HORN BULLS.

9 FIRST-CLASS BULL CALVES FOR SALE, the get of the Sweepstakes Bulls "Baron Solway," and "Duke of Bourbon."

JOHN SNELL,
5-16-1t EDMONTON.

LEICESTER AND COTSWOLD RAMS

FOR SALE.

30 SHEARLING and TWO-YEAR-OLD RAMS, of first-class quality. Also a number of RAM LAMBS.

JOHN SNELL,
v5-16-1t EDMONTON.

THE FINEST STRAWBERRY

FOR AMATEUR CULTURE!—**NAPOLEON III,** of LARGE SIZE, HIGHEST FLAVOR, GREAT PRODUCTIVENESS, AND EXTREME VIGOUR AND HARDINESS. We offer a splendid stock of young, thrifty plants of this valuable new French variety. Illustrated Descriptive Circular mailed to applicants.

☞ Price of Plants, (by mail, Postage paid,) $3.00 per doz.

EDW'D J. EVANS & Co.,
v5-15- YORK, PENNA, U. S.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Aug. 13th, 1868.

FLOUR AND GRAIN.

The produce markets since our last have been dull and uninteresting. Stocks of all kinds are nearly exhausted.

FLOUR.—The business done during the week has been very small. Stocks here are now nearly exhausted, and few or no lots are offering. No. 1 Super. is nominally worth $7, and spring wheat extra $7 25. In fall wheat flour there has been nothing doing—there is little demand for the higher grades. Buyers will not pay within 50c. for fall wheat flour of the price of strong fresh ground spring wheat flour.

Oatmeal.—The market is firm. Car lots are worth from $6.50 to $6.75.

Bran.—Worth from $10 to $11 per ton.

Wheat—The market has been unusually quiet. There have been almost no lots in the market. Spring wheat is scarce and in good demand for local mills. There are buyers at $1.60 for car lots. Fall wheat is dull of sale. A few car lots were offering during the week without buyers.

Oats—Scarce. Lots offering to arrive at 60c., without buyers; on the street 60c. would be paid.

Barley.—The season is this year expected to open earlier than usual. A few loads have already been brought into the market. To-day four were sold; the prices paid were 94c. 95c. 96c. and 97c.

Peas—Nothing doing. No stock in the market. Prices nominal.

We quote wholesale prices: Flour per bbl. superfine No. 1, $7 to $7 25. *Oatmeal*, per bbl. $6.15 to $6.25. *Bran*, per ton $10 to $11. *Wheat*, Spring, 60 lbs., $1 50. *Wheat*, Fall, 60 lbs., $1 48 to $1 50. *Barley*, 48 lbs. 94c. to 97c. *Peas*, 60 lbs., 85c. *Oats*, 34 lbs., 60c.

Hay—$12 to $10 per ton.

Straw—$10 to $12 per ton.

PROVISIONS.

Pork—Very light stocks in the market. Nominally unchanged, $23 to $23 50 for mess.

Cut Meats—Nothing doing. Quotations nominal.

Butter—Scarce, and held firm. Owing to the advance in gold there has been no export demand. Holders are asking from 15c. to 20c. for tub, according to quality, with buyers at from 16c. to 18c.

Cheese—Market firm. Holders are asking 11c., with buyers at 10c. for choice dairy.

Eggs—Selling at 10c. in lots, packed, with supply good.

Bacon—Unchanged. Cumberland cut worth 10½c. to 11c.

THE CATTLE MARKET.

A good number of cattle have been offering during the past fortnight, but principally inferior. First-class cattle have been scarce. We quote:—1st class $6 50; 2nd, do. $5 50 to $6 75; 3rd, do. $4 50. *Sheep* have been in plentiful supply, and of good quality. Trade has been brisk. We quote:—1st class $4 to $4 50.; 2nd, do. $3 75 to $4; 3rd, do. $2 75 to $3. *Lambs* have been in good supply and were readily taken up. We quote:—1st class $2 to $2 75; 2nd, do. $2; 3rd do. $1 50 to $1 75. *Calves*—The market has been well supplied, but the demand is not now so active. We quote:—1st class $6 each; 2nd, do. $4.75 to $5; 3rd, do. $3 to $3 25.

Wool—The market is firm. Small lots on the market sell at 27c.; a better feeling seems to prevail among dealers, and a few days ago a lot of selected combing sold as high as 30c.

Hops—Inferior per lb., 10c. to 15c.; medium do. 15c. to 25c.; good do. 20c. to 30c.

Salt—American bbls., $1 60. Liverpool, coarse, bags $1 to $1 10.

Hides and Skins—Hides, green, rough per lb., 6½c., do. green, inspected, 7c.; do. cured and inspected, 7½c. to 8½c.; Calfskins, green, 10c.; do. cured, 12c.; do. dry, 18c. to 20c.; Lambskins, green, 30c. to 35c.; Pelts, 25c.

Montreal Markets, Aug. 12.—*Flour*, superior extra, $7 60; extra $7 15 to $7 25; Fancy, $6 80 to $6 85; Welland Canal superfine, $6 65 to $6 70; Superfine No. 1 Canada wheat, $6 30 to $6 50; Superfine No. 1 Western wheat, $6 50 to $6 60; No. 2 do., $6 00 to $6; Fine, $5 60 to $5 65; Middlings, $4 75 to $4 80; Pollards, $4 25 to $4 40; Bag flour, $3 40 to $3 60. *Wheat*—Canada Fall, $1 50; Canada Spring, $1 55 to $1 60; Western, $1 44 to $1 45. *Oats*—Per 32 lbs. 48c to 50c. *Butter*—Dairy, 17c. to 19c.; store packed, 16c. to 18c. *Cheese*—Factory, 9½c. to 10½c. per lb.; Dairy, 9c. to 10c. *Eggs*—14c. to 15c. *Ashes*—Pots, $5 90c.; pearls, $5 50. *Pork*—Mess, $25; thin mess, $23 to $23 50; prime mess, $17 50; prime, $16 50c. to $16 70c.

Milwaukee Markets.—Aug. 12, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 9,000 bushels; shipments none; No. 1 wheat, quiet but firm at $1 83; No. 2 wheat, at $1 77½ to $1 78. Flour quiet. Pork unchanged and nominal.

Chicago Markets, Aug. 12, noon.—William Young & Co.'s report.—Wheat—Receipts, 46,000 bushels; shipments, 4,000 bush. No. 2 wheat, firm at $1 78, cash, and $1 70 in store, sellers' option all August. Corn active at $1 03½ to $1 03½; receipts, 151,000 bush; shipments, 106,000 bush. Pork nominal and unchanged.

Contents of this Number.

	Page
THE FIELD:	
Cultivating the Thistle	241
Building Stone Fences	242
Canada Thistles—When to Cut	242
Sandy Lands	242
The Treatment of Tree Seeds	242
Marl	242
Hardening the Mould Board of Ploughs	242
Thinning of Turnips	243
New Double Furrow Plough	243
Top-Dressing Grass	243
The Barberry as a Hedge Plant	243
New and Simple Potato Digger	243
Ashes for Wheat	243
Great Yield of Barley	243
Irish Oats	243
RURAL ARCHITECTURE:	
Cheap Country House (with three illustrations)	244
Painting Buildings and Farm Implements	244
An out-door Cellar—Rail Road Doors for Barns—Choice of a site—The oddities of Ownership	245
STOCK DEPARTMENT:	
Importation of Aldorney Cattle	246
Large Merino Fleece	246
Cotswold Wool	246
Stock Purchases	246
Now Disease in Lambs	246
Death of the Short Horn Bull, "Duke of Bourbon"	246
An Important Discovery	246
VETERINARY DEPARTMENT:	
The Hot Weather and the Health of Stock	246
THE DAIRY:	
The Drought and its Influence on the Dairy	247
Milk Fever	247
Butter-making at Cheese Factories	247
Coring Rennet	247
THE APIARY:	
Industrious and Prolific Colony of Bees	247
Fecundity of the Queen Bee	247
CORRESPONDENCE:	
Weather and Crops in Oxford—Hedges, &c.	248
Poultry Disease	248
Coal Oil for Insects	248
EDITORIAL:	
The Weather and Crops	248
"Farming for Boys"	248
Cattle Plague in the West	249
Food Prospects for the Coming Winter	249
Tripiree Hall Farm	250
International Convention	250
Parliamentary Documents	250
Fall Show	250
Substantial Recognition of Services	250
A good Idea	250
Samples of Grain	250
LITERARY NOTICES:	
Farming for Boys—The Little Corporal—"Sterility is Laid"—The Farmers' Gazette and Industrial Index—The Prairie Farmer	250
The Canadian Entomologist	251
AGRICULTURAL INTELLIGENCE:	
Royal Society's Exhibition at Leicester	251
Imports and Prices of Wool	252
Grapes Along the Lake Shore	252
Abolition of Toll Gates—Cloth Manufacturing in Australia—The Muskoka District—Close of the St. Thomas Flax Mills	253
HORTICULTURAL:	
The Raspberry in Quebec	253
Will Flowers of August	253
Horticultural Single Tree (with cut)	253
A New Mulch for Grapes—Quick Growth	254
ENTOMOLOGY:	
Exhibition of Insects at Paris	254
Specimens Reared from Larvæ or Pupæ	254
Chad Fly	254
THE HOUSEHOLD:	
Drowning	254
Washing Windows	255
POULTRY YARD:	
Chickens Dying in the Shell	255
Imported Eggs—Egg Story	255

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 29 and 31 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN, Managing Director.

VOL. V. No. 17. TORONTO, CANADA, SEPTEMBER 1, 1868. POSTAGE FREE.

The Month.

EPTEMBER is one of the pleasantest months of the year. As June is a delightful compound of spring and summer, so September is an agreeable mixture of summer and autumn. We have mid-day heat, but it is tempered by cool nights. Indeed, some time this month, Jack Frost may be expected to appear on the scene, committing his first depredations on our melon, tomato, and grape vines, blanching the corn leaves, and putting the first faint hues of loveliness on the forest leaves. Summer will soon abdicate the throne, and after a brief October interregnum, Winter will be crowned king. On all the beauty and life of nature may now be clearly read the inevitable doom, "PASSING AWAY."

The mean temperatures for September, at the prominent Canadian points enumerated during the previous months of the year, are as follows:—

Stratford	53° 59'
Hamilton	58° 00'
Barrie	54° 51'
Toronto	56° 20'
Belleville	56° 29'
Montreal	61° 46'
Quebec	54° 40'
St. John, N.B.	55° 56'
Halifax	58° 00'

It has been well remarked that "when autumn days come, Nature, like a retired merchant, changes its manner from thrift and bustling industry to languid leisure and ostentatious luxury." But the farmer cannot yet play the retired merchant, though the air is deliciously restful, and the scenery suggestive of repose. The hurry of harvest is over; but not until winter fairly sets in can the busy farmer think of holiday. Chief among the duties of this month is the sowing of fall wheat. This crop is not now so widely grown as it formerly was, owing to the many uncertainties and disappointments that have attended it of late years. It is a question worth considering, whether it is not falling too much into disuse. In view of the superior quality and higher value of winter wheat, is it not wise to sow it, even though some risk is run of failure? The loss of seed is all that is hazarded, for the preparation of the ground is so much clear gain, even if it is found needful ultimately to sow spring wheat. If our farms had not been so absurdly cleared of everything in the shape of a green tree, if protective belts of timber had been left at proper intervals, one great cause of the failure of this important crop would never have existed. In the unsheltered condition of our grain fields, and our exposure to drought in summer, and bleak winds in winter, we are suffering the pains and penalties resulting from the wholesale and inconsiderate destruction of our forests. By all means have the patch of winter wheat. And if there be a field so situated as to be a protected nook, shielded by the woods from bleak, wintry winds, let that be devoted to this crop. It will pay to put land in the best order for fall wheat. It should be well enriched and made as mellow as possible. The best of seed should be got, carefully cleaned from all admixture of weeds or other grains, brined to destroy smut, and put in with a drill, *by all means*. All grain crops do best drilled in, and it is time broadcast sowing were altogether abandoned; but there is no crop that shows the advantage of the drill as does fall wheat. If the land is to be seeded down with timothy, it is better to defer that operation a fortnight later, than to sow the grass seed with the wheat. Clover seeding should be attended to as early as possible the ensuing spring. Fall ploughing is an operation that should not be neglected, and after the seeding for winter crops is finished should be continued as long as the state of the weather will permit.

Various other farm operations are in order this month. Not the least important is the care of fattening animals. It is a great mistake to defer feeding them for the butcher too late in the season. They improve in condition, if well fed, much more quickly in early fall than when winter sets in. This applies especially to hogs. They should be penned early, their styes kept scrupulously clean, and their food given regularly and abundantly. "Never," says the *Illustrated Register*, "keep them waiting for food, never let them squeal off their flesh." When we have the usual downpour of fall rain, September is a good month for butter-making. The winter supply should now be laid down, if it has not been already done. Corn must be harvested this month, and properly cured, the stalks will make excellent winter fodder. This is a source of fodder supply which is too little thought of by the generality of Canadian farmers. Many odd jobs lie in wait to occupy spare days and hours at this time of year. Meadows may be top-dressed, if there be well-rotted manure to do it with. Happy is the farmer who, notwithstanding the demands of the turnip field and fall wheat patch, has choice dung to spare for the meadow. It protects the grass crowns, and affords a cherishing mulch, while it stimulates an early and vigorous growth, when spring comes. Grubbing up bushes and briars, exterminating thistles to be found here and there in pastures, rooting out mullein and other weeds that disfigure the fence corners and road-sides, draining swamps, if the weather be sufficiently dry, clearing stones off pasture lots and fallows, preparing root cellars for being stored, picking out weeds from among turnips, to prevent their going to seed, fixing up cattle-sheds, repairing fences, are not these "chores" enough to show that there need not be an idle minute on the farm, betwixt this and the setting in of winter?

September is the month during which most of the Agricultural Exhibitions are held. It should never be deemed lost time, wasted money, or mere holiday-keeping to attend these. Much useful information may be obtained at such places, that is, provided those who go keep their eyes and ears open. "Eyes and no eyes," might be the title of a descriptive account of the manner in which two classes of persons, the observant and unobservent, demean themselves at shows. An enquiring mind will find enough to engage its best attention, and waken its fullest energies on such occasions, while a dull, sleepy mind will go and come like a door on its hinges. These exhibitions do much to keep the spirit of improvement alive, and are well worthy of encouragement and patronage from all.

Beyond the pleasant work of in-gathering, and the ceaseless fight with weeds, there is not much to do in the garden this month. Strawberry plants may be set out, and with careful tillage, weeding and watering, will yield moderately next spring. Land for new gardens or orchards may be got ready for spring operations by thorough ploughing, manuring, and mellowing. We prefer to plant both fruit and shade trees in the spring, though fall-planting has its advocates.

The apiary will need some attention in September. By the middle of the month the honey harvest will be quite over, and all surplus boxes not yet removed should now be taken off. Late or small swarms should be put together. One strong stock is better than two or three weak ones. Generally speaking, it is poor policy to feed bees, but if it must be done, now is the time, instead of disturbing them in winter. Watch against robbing, and if there are signs of it, contract the entrance to the hive, so that only a bee or two can pass at a time. Queenless stocks should either be joined to others, or supplied with queens. Look out sharply for the moth-miller.

The Field.

Irrigation.

The artificial irrigation of land has been practised from time immemorial, and is in some countries absolutely indispensable to successful agriculture. The ends sought by the operation are both the supply of requisite moisture in countries or seasons of deficient rainfall, and the addition to the soil of rich alluvial deposit left by the overflow and subsequent draining of river water. The most costly works have been constructed to effect the desired object; but in favourable situations the end has sometimes been attained by comparatively simple and inexpensive means. It is usually along the course of rivers only that this method of watering has been adopted, though in some instances water had been conducted for the purpose to a considerable distance, artificially raised above its natural level, and stored in ample reservoirs for the purpose of irrigating otherwise arid and sterile land. Most frequently fields thus irrigated have been sown to grass, and called water meadows; but in many countries the same plan of operations has been adapted to arable land, and water is thus regularly supplied to corn crops, being conducted over the ground between the ridges or drills of the growing grain. Great advantages have thus been secured, and the expense, however great, has been well repaid by the increased productiveness of the land.

Most of the water meadows in Britain are met with in Gloucestershire, Wiltshire and Dumfriesshire. In the first-named county a striking instance of the benefit derived from the process was afforded in the following case: A meadow of eight acres, in South Cerney was thus artificially watered, and the ordinary yield, even in dry seasons, is thus stated. The land was untouched till the 2nd of April, when it was let to be fed for five weeks by stock, as follows: 107 sheep, 8 cows, and 4 colts. After this the grass was allowed to grow, and fifteen tons of hay were cut; and subsequently the after-feed, valued at 25 shillings the acre, was again eaten off by stock. The profit was estimated at nearly £10 the acre. This land, which is now in the possession of a miller, was formerly occupied by a farmer, between whom and the miller some disagreement arose, in consequence of which the farmer was deprived of the use of the water. During that season, which was unfortunately dry, the whole produce of the eight acres was only three tons of hay. On the estate of the Duke of Bedford, there is a water meadow of nine acres, the yield of which is thus given:—During March 240 sheep fed on the grass for three weeks; in June, eighteen tons of hay were cut from the field; in August, thirteen and a-half tons were again mown; and in September, during the whole month, there was pasture for eighty sheep. The *Farmer* (Scottish), of the 5th August, contains an illustration of the value of artificial irrigation, in the following extract:—

"Robert Malabar, of Newcastle, in this county, describes the poor state of the grass crops on the land adjoining the Trent, which he says might have been improved by irrigation, and he gives an instance:—'A few years ago I designed and directed a diversion of a portion of the river Trent over nearly twenty acres of land, which was then partly a bed of rushes, &c., and on the whole worth about 20s. an acre to rent. It is now free from rushes, and affords a bulk of early spring eating, having this year mainly enabled the tenant to feed the lambs from 100 ewes till the latter end of May, and has since produced about two tons of hay per acre—(this may be considered an excess over the original produce, as the spring eating and after-math are now more valuable than the year's produce was ere the improvement was made)—which is now safe in the stack, and the tenant can apply the stream at once again if he chooses. The rental is now 60s. per acre. Thus, having seen the enriching capabilities of the Trent stream in this instance, I can see no good reason why a similar improvement might not be more generally made on the lands through which the river passes.'"

There is another very important application of irrigation which has quite recently received special attention, namely, the utilization by its means of the sewage of towns, which are thus emptied of what is noxious and pestilential to the residents, while land in the vicinity is at the same time vastly enriched.

The subject is one which may well engage the attention of thoughtful and practical men in this country, and is especially pressed upon the attention of agriculturists by the drought of the present season, indeed, we may almost say, by the yearly recurring drought of the country. It is beset, we admit, by difficulties of no trifling character, but in this age of ingenuity and enterprise these are not surely insurmountable; and while we would place our chief reliance on deeper cultivation, subsoiling, and underdraining, we do not think the subject of irrigation should be altogether ignored or neglected.

Lewis' Incline or Self-closing Gate.

At the last Provincial Exhibition Mr. Lewis exhibited a number of gates, and among those that received the commendation of the judges was the incline gate represented in the accompanying illustration, which will be readily understood by aid of the maker's own description as follows:—The cut

shows the side or front elevation of gate. It is made to slide on rollers placed between the upright frames and in the opening C. C. The gate is made in two parts, consequently this description of the left hand gate applies equally to the other half.

The top and bottom rails are made in the ordinary way, but the middle part of the gate is made by cutting a board anglewise. The board should be 10 feet long and 17½ inches wide, and is cut from 3½ inches *down* from the upper edge at one end, and 3½ inches *up* at the other end. This will form an incline of about one inch to the foot. The pieces when cut are then separated parallel from each other about 6 inches, which will admit of a batten, 1 inch thick and 3 inches wide, being nailed on the lower edge of the upper board, and of a 5 inch roller being inserted for the gate to work on. There are two rollers to each gate, there being one between each pair of posts, and in a line with the opening C, C. To lighten the appearance of the gate, tapering pieces are taken out of the wide ends of the centre-boards, as at D and A. It is very simply made, the battens being all scored into the uprights, and an inch batten is nailed on the face, thus dispensing with mortising.

The gate is made to close itself. A person passing through would simply push it open sufficiently to pass, and the gate will close after him spontaneously. If, however, it is required to open to the full width, to let a vehicle through, it is only necessary to push it to its full extent, when it will stop of its own accord.

The following are the chief advantages claimed for this invention. It cannot be left open by children or careless persons, and therefore is particularly adapted to dangerous places, or where it is absolutely necessary that the gate should be kept closed. Again, it lifts itself out of the snow in the winter, and further, it cannot easily get out of repair; as it does not swing out in the way, occupies no more space than merely its thickness, and even that will be close to a wall or fence, it takes but little room in a yard or enclosure of any kind. The hangings are cheap and the gate of good appearance.

Many of those gates are being erected in the city of Kingston, and in the counties of Lennox and Addington, and it will be on exhibition at the approaching Provincial Show in Quebec, and most probably also at Hamilton, where parties will have an opportunity of inspecting it and judging for themselves.

We direct attention to Mr. Lewis' advertisement in the present issue.

Soules Wheat.

To the Editor of THE CANADA FARMER:

SIR,—In your last number you notice having received a sample of very fine wheat from Mr. Samuel Berriman, of Stamford. And, from Mr. Berriman's remarks, the inference would be naturally drawn that the Soules wheat was, regardless of the midge, by far more profitable to raise than either the Mediterranean or Midge-proof. Mr. B. may be right so far as his own farm is concerned, which he describes as "a light sandy soil with a subsoil of gravel over one hundred feet deep." I know other localities where the Queenston limestone comes near the surface and forms a natural under-drainage, where they have continued to raise the Soules wheat with success. But what might apply to these exceptionably favoured localities will not form a rule for those not enjoying the same natural or artificial advantages of underdrainage. And I know from sad experience, that although I can raise straw six feet high and heads six inches long, since the advent of the midge the raising of the Soules wheat has been a decided failure with me, one fine crop of straw on fifty acres not paying for threshing. I know of some farmers in this neighborhood who persisted in raising Soules wheat until it nearly ran them ashore, which they richly deserved for continuing to propagate a pest in the country.

I do not think that Mr. B's comparison in the yield between the red and white wheat is quite right during the present reign of the midge. My two adjoining neighbours have threshed their crops, the one Mediterranean and the other Midge-proof, and in either case the yield was thirty-three bushels to the acre; had it been Soules, and no midge, I should have judged the yield would have been forty bushels per acre. And as regards the price, Mr. Berriman says that when red is $1.30 white is worth $1.75, which will not agree with the trade reports, which generally rate red the same as spring wheat, about 12½ cents lower than white. I have made the above remarks for fear that some not possessing the advantages of Mr. B. might be induced to follow his example to their loss.

R. N. BALL.

Holmehurst, August 10, 1868.

Salt.—Phosphoric Acid in Ashes.

To the Editor of THE CANADA FARMER:

SIR,—In your number of July 15th, I notice an extract from Johnstone's Lectures on Agricultural Chemistry on the value of salt as a manure. Some of our farmers in this section of the Province of Quebec have been using it latterly with great benefit to their grain crops, and in conjunction with animal manures there can be no doubt of its good effects, especially on dry soils.

From the same work I extract the analysis of the insoluble matter of birch-wood ashes, which is as follows:

Silica	5·50
Lime	62·20
Magnesia	3·00
Oxide of Iron	·50
Oxide of Manganese	3·50
Phosphoric Acid	4·30
Carbonic Acid	31.00
Carbon	
	100·00

For my own satisfaction I made some experiments to test the quantity of lime present in the ashes of the birch, and found the above substantially correct. The presence of phosphoric acid would show the value of these ashes as a manure for wheat, for Professor Dawson, in an address delivered in Montreal in the beginning of this year, conclusively showed how absolutely necessary to man's health and well-being it was that a certain quantity of this substance should be found in the soil. If it requires, as he then showed, but four-tenths of one per cent. to supply wheat with the necessary quantity of phosphoric acid, here is at once a means, too often utterly wasted, of restoring to the soil a part of what has been extracted from it. The unleached ashes of course, from not being deprived of their potash, are more valuable than the leached, of which the above is the analysis.

Trusting the above may be of use to some of your readers, I forward it for insertion, if you think it worthy of a place in your columns.

"GOSFORD."

August 6th, 1868.

Thin Sowing.—Have you tried it?

If not, pray do so, especially if you are a lover of £ *s. d.* No man should venture to say that such a thing will not answer, unless he can prove it has failed. A mere supposition or imagining in such matters has no value whatever. I have often brought color into the cheeks of agriculturists who stated positively that thin sowing would not answer, by mildly asking whether they had ever tried it?

There is nothing more easy than to try (as I have done) half an acre or an acre with a diminished quantity of seed, so as to deduce a comparative result. After some fifteen years of such experiments I have come to the conclusion that thick sowing in wheat, barley, and oats, not only wastes much seed, but inflicts a much heavier loss by preventing the full development of the plant, and thus greatly diminishing the crop in quantity and lessening its quality.

Farmers quite comprehend the necessity for giving ample room for the growth of their root crops, but it does not appear to me that they perfectly understand the nature of the wheat and other grain plants. I have heard many say that they sow thick to prevent tillering and to smother the weeds. Although I do not recommend a general sowing of so small a quantity as a peck an acre, I find that it produces an ample and superior crop, and it especially illustrates the natural habit of our grain plants, as may be now seen on half an acre in one of my wheat fields, the rest of the field, right and left, being a splendid crop, from one bushel per acre—my usual quantity. Both thick and thin were sown, or rather drilled and dibbled, on the 20th November, which would be naturally considered much too late for a peck per acre. Well, up it came, a single stem or bodkin from each dibble hole, and we could only see that there was any plant by placing our heads low to the ground and taking a horizontal view. In fact, it looked like a bare fallow from November to April, the rest of the field (one bushel per acre) looking thick and luxuriant.

In April, and early in May, it still looked thin, but the original bodkin gradually surrounded itself with from thirty to fifty other juvenile bodkins, shooting out horizontally. Well might the able and amusing correspondent exclaim, "Where can the wheat have come from?" Now (on the 20th June) the half acre strip of fallow has become a fine standing crop of wheat, with ears and kernels fifty per cent. larger than its neighbour. I have been amused by saying to my farm visitors, "you will soon come to the peck an acre," and several walked past it without distinguishing it from its competitors on either side. They evidently looked for a thin crop, which is not now to be found. I could, in the course of several years of experiment, have won a small fortune in wagers. But it is not strange that among some 400,000 British farmers, it is Mr. Mechi only that tries and records these important experiments. Can it be a matter of indifference whether in seed alone we pay ten shillings per acre more or less? The field in which this peck an acre is sown will probably produce six qrs. of wheat, perhaps even more, so that the poor peck has a strong competitor. Which is to be the winner—the peck or the bushel? We shall all know some day. In 1864 and 1865 the peck gave a crop of seven qrs. two bushels, and seven qrs. one bushel—the best on the farm, and the finest sample, for I can distinguish the heap of thin sown grain at once, by its superior size and quality.

It has often surprised me that nearly every kernel vegetates, which is contrary to the opinion expressed by many. As we only put one kernel in each hole, we are enabled to see where any failure takes place. This is the fifth year of the peck an acre experiment, and it certainly promises to be an abundant crop. Farmers who sow two and a half to three bushels of wheat per acre, and five bushels of oats, seem surprised at the level or even appearance of the heads of corn. An up-and-down crop, like a mixture of tall grenadiers and tiny riflemen, is a sure consequence and evidence of a grand battle, in which the weaker have gone to the wall.

Mr. Hallet is doing an incalculable amount of good by laying down rules for the thin planting of his wheat and other grain.—*F. G. Mechi, June 24.*

Fall Ploughing.

Without elaborating the many strong points in favor of fall ploughing, a few of the more prominent benefits may be briefly stated as follows:—

1. August and September is a good time to turn over bound out sod land, and manure and re-seed it at once to grass, obtaining a crop of hay the following year.

2. October and November is an excellent time to break up sod land for planting the following spring.

3. The weather is then cool and bracing, and the team strong and hearty for their work; while the weather in spring is more relaxing and the team less able; and spring work being always hurrying, it saves time to despatch as much of the ploughing as possible during the previous autumn.

4. Sod land broken up late in autumn, will be quite free from growing grass the following spring, the roots of the late overturned sward being so generally killed by the immediately succeeding winter that not much grass will readily start in spring.

5. The frosts of the winter disintegrate the ploughed land, so that it readily crumbles in fine particles in sprlog, and a deep, mellow seed bed is easily made. The chemical changes and modifications resulting from atmospheric action during the winter, develop latent fertility in the upturned furrows, which, with the mellowing influences, materially increase the crops.

6. Most kinds of insects are either wholly destroyed or their depredations materially shocked by the late fall ploughing.

7. Corn stubble land may be ploughed late in the fall, and thus be all ready for very early sowing in spring, thereby going far to insure a good catch of grass; the roots of the new seeding hold well, being well established before the droughts of the summer come on.

8. Most land needs deeper ploughing than has generally been practised. Where the sub-soil is fine grained, unctuous and close, or where there is a hard pan of good quality, deep ploughing may be at once resorted to, with decided advantage. Where the sub-soil is poorer, the ploughing may still be advantageously deepened by degrees, say an inch at each new breaking up. But in by far a majority of cases, deep ploughing may be practised at once—indeed, it may be the *rule* with safety, while shallow ploughing may be the *exception*. Plough say nine, ten, eleven, or twelve inches in November. The sub-soil turned up will grow several shades darker by spring. The frosts and atmospheric influences of winter will mellow the soil; the inorganic elements, and all latent fertility, will be made more active for benefiting the crops.

In spring, spread the manure and plough it in, or otherwise work it in or mingle it with the soil, to the depth of four inches, or a little more or less, and you have the very best attainable condition for realizing good crops. Deeper ploughing may thus be practised than would at all times be safe, or expedient, if the ploughing is delayed till spring.—*Maine Farmer.*

Treatment of Clay Land.

I had a patch of hard clay land in one of my fields, containing about half an acre; it was so hard that we could not plough it with two horses, and when it was ploughed, it came up in large lumps from one foot long to three; the harrow would bound and bounce along over it, and you could not see where it had been; we could not plant it for the lumps. It was a source of trouble and vexation to me, and I determined to do something with it; so I went to work. I put a large blind drain through the middle of the patch; this was my main drain. Then I ran from the main drain small ones each way, twenty feet apart, to the outside of the clay patch. I laid in a two inch tile drain. Then I drew on a large amount of corn cobs and coarse manure; then summer fallowed; then in the fall, I drew on a large amount of well rotted manure, and sowed wheat, and it was by far the best wheat that I had in the field, and I never after saw any clay lumps to speak of in the patch. It was the best land to plough that I had, and raised the largest crops, and I am satisfied that if farmers would drain and manure their clay lands heavily, it would richly pay them for the trouble and expense, and be a saving in horse flesh and harrow teeth.—*Cor. Country Gent.*

When to Sell Grain.

The *United States Economist*, after speaking of the abundant grain crops in this country and Europe, and the prospect that, as a consequence, the prices of grain will gradually decline to a certain extent, says:

Our surplus, whatever it may be, will have to be sold in the Liverpool market, and must come down to the prices there current, and the price at which we can sell the surplus will determine the value of our entire crop. The farmers would do well to look these probabilities fairly in the face. If they hold back their produce, in consequence of declining prices, they may delay the shipment of our surplus for a few weeks or months, but ultimately they will suffer from a decline much more extreme than would otherwise have occurred. Year after year has the West adopted the policy of keeping back its supplies until the close of navigation, compelling England to supply her wants from Europe, the result being that in the spring the surplus is rushed to the seaboard, and, under the pressure of receipts, prices fall, and Liverpool is enabled to make its own prices upon the grain we are obliged to realize upon. As a rule, an early market is always the best for the farmer, and especially so in periods of abundant crops.

SHARP IF TRUE.—The latest swindle is a Rochester, (N. Y.) invention. When hay is sold by the ton, a man conceals himself in the load and is weighed with it. While the load is driven to the barn of the purchaser, the man leaves his hiding place and goes back to the hay-market to be sold again. The trick was not discovered till last week, though it is understood that it has been practised for years. *Ex.*

RINGLEADER PEAS.—Our quotation from the *Mark Lane Express*, and remarks on the difference between the English and Canadian ideas of "quick growth," have elicited the following communication from a correspondent in Pickering:—"In the CANADA FARMER of Aug. 15th, on page 254, there is a short paragraph on the early growth of Sutton's Ringleader Peas in England. For your information I may say that I procured, last year, one quart of the same peas from Mr. James Fleming to grow for seed. The spring of 1867 was wet, and I did not get the ground in a state to please me until the 31st May, when I sowed them; and I harvested them fully ripe on the 24th July. This year I sowed the produce (about one peck) on the 9th May, and harvested them fully ripe on the 13th July. The difference in the time of growth will thus be seen to be rather less in Canada than half that of England."

MEASURING GRAIN IN THE BIN.—The rule and mathematical calculation for measuring grain in the bin will be found in the first volume of the CANADA FARMER, page 175. It is in the number for June 15th; to which we refer our correspondent from Hilton. A simpler method, sufficiently accurate for all practical purposes, is given on page 200 of the same volume. It is the method we have usually employed, and as it may be useful to many farmers at the present season, who have not an opportunity of seeing the back number referred to, we here repeat it:—Multiply the length, breadth and depth of the grain together in inches, and divide the product by 2,150 (the number of cubic inches in a bushel), and the quotient will be the number of bushels in the heap or bin.

Canadian Natural History.

Canadian Martens.

Of the Weasel family two species, the Mink and the Skunk, have already been briefly described and illustrated in these pages. The accompanying engraving represents two other members of the same group. The larger animal is known in some localities as the Fisher, (*Mustela Canadensis*); it is also sometimes called the Black Cat, or in other parts it goes by the name of Wood-Shock or Pekan. It is the largest and most powerful of the tribe. The specimen in the University Museum, from which our illustration was taken, measured fully three feet, the head and body being two feet long, and the tail rather over one foot.

The animal possesses in a marked degree all the peculiarities of the genus, in the long agile body, short legs, alert motions, sharp and powerful teeth,

and carnivorous habits. The color is a dark brown verging to black, somewhat greyish over the head and inferior parts of the body, but deepening into blackish towards the hinder parts. Its general color is indeed so dark, that among hunters it is frequently called the black cat. The head is broad, the nose acute; the ears are broad, round, and wide apart. The canine teeth, especially those of the upper jaw, are long. The fore feet are shorter than the hind feet, which are covered with hair. The toes are partially connected with a short hairy web. The tail is long, bushy, and pointed.

The fur is long, fine, and lustrous, increasing in length towards the posterior parts of the body. It consists of two kinds of hair—a short brown down, and longer and more rigid hairs. These are longer and blacker in winter than in summer. The color is subject to some variation, and there is one variety altogether white except the nose and feet. The general color of the long hairs already spoken of, however, is dark brown. On the head, neck, and upper and fore parts of the body, these brown hairs are tipped with grey, giving a hoary appearance to the fur of these parts, but towards the posterior parts the color is more uniform, and deepens into black. There is sometimes a white spot on the throat, and traces of a similar spot on the belly.

The Fisher is a large, powerful, and somewhat formidable-looking animal, standing about a foot high. It chooses its abode usually in the neighborhood of some swamp or lake, and feeds, like the rest of its family, on the smaller mammalia, or even on birds, frogs, snakes and other reptiles. It is especially fond of fish, and hence has obtained one of its popular names. It often robs the hunter's traps of the fish used as bait. It breeds once in the year, bringing forth two at a birth. Its geographical range extends across the continent from the Atlantic to the Pacific, and between the 40th and 70th parallels of latitude.

The smaller figure in the illustration represents an animal called the American Marten, sometimes American Sable (*Mustela Americana*), closely resembling and sometimes confounded with the Pine Marten of Europe. The head of this species is long and pointed; the ears broad, short, and somewhat acuminated. The eyes are small and black, the body elongated, the tail bushy, and somewhat enlarged towards the end. The toes are furnished with long, slender, and compressed nails, nearly covered with hair. The color varies considerably according to age, season, and locality. A yellowish brown or fulvous hue predominates in its fur. The head, neck, throat and upper part of its body, are of a yellowish white. The whole length of the animal is about two feet, including the tail.

The American Sable is a pretty and active little animal, inhabiting elevated wooded districts, making its habitation in hollow trees, and supporting itself on the usual fare of its genus. It is extremely prolific, bringing forth six or eight at a litter. At the time when the beech-nuts are ripe the hunters say it will not touch bait, and it is supposed by them to feed on this vegetable diet; but the more probable explanation may be found in the fact of the abundance of food attracting to the beech trees at this season the smaller animals that feed on nuts, and who become an easy prey to their quick and voracious enemy, the Marten, who thus profusely supplied with its natural food, is not tempted by the hunter's bait. Like the preceding species it has a wide geographical range on this continent, extending from the 40th to the 68th parallel of latitude.

Martens are said to be capable of domestication, but they are of very uncertain temper, and can never become very trustworthy pets. Their fur is of considerable value, and destitute of any of that offensive odour which characterises some of the weasel family.

On Skinning Quadrupeds.

When a quadruped is killed, and its skin is intended for stuffing, the preparatory steps are to lay the animal on its back, and plug up its nostrils, mouth, and wounds, if any, with cotton or tow, to prevent the blood from disfiguring the skin. A longitudinal incision is then made in the lower part of belly, in front of the pelvis, and extended thence to the stomach, or higher if necessary, keeping straight if possible. In this operation the hairs must be carefully separated to the right and left, and as few cut as possible. The skin is also turned back to the right and left, putting pads of cotton or tow between it and the muscles as you proceed in skinning. If any oily matter should make its appearance on the skin it must be wiped away. Now remove the skin in every direction as far as the incision will admit of. Each of the thighs must be separated at its junction with the pelvis, that is, by the head or ball of the thigh bone. The intestinal canal is next cut across a little way above the anus, and the tail is separated as close to the animal as possible. After this, the pelvis is pulled out of the skin and the skin separated from the back, with the handle of the scalpel passed between it and the carcass. It is pulled gradually upwards until the operator reaches the shoulders. The whole hinder parts and trunk of the body being thus out of the skin, the next operation is to remove the fore legs by separating them from the body at the shoulder joint. When the joint of one shoulder has been separated from the body, the leg is [illegible] into the skin, and the animal turned, in order to repeat the same with the other side, the limb of which

is also returned. The skin is then removed from the neck. The next thing is to separate the skin from the head. By the assistance of the knife, it is taken off as far as the nose; while great care must be taken not to injure the eyelids, and to cut the ears as close to the skull as possible; and also to avoid cutting the lips too close. All this having been performed, the head and trunk are separated from the skin. The next operation is to remove the head from the trunk at the upper bone of the vertebræ. The external muscles of the head and face are then cut off, and the bones left as free from flesh as possible. The occipital bones are next opened with a strong knife, and the brain all carefully removed. The fore legs are now pulled out of the skin, by pulling the legs one way and the skin another, as far as the claws of the foot. All the muscles are then cut off the bones, while care is taken not to injure the ligaments and tendons. They should be left adhering to the knee. They are then returned into the skin again. The hind legs are then treated in like manner. The tail is the last part skinned, and this is a more difficult task than the other parts of the body. Two or three of the first joints of the tail-bone are first laid bare by pulling the skin back. They are then tied with a strong cord, which must be attached to a strong nail or hook on the wall. A split stick is then put on the tail-bone and forced to the extremity, and the tail-bones come out of their enveloping skin. The skeleton head having been divested of all its fleshy matter, tongue, palate, external muscles, and brain, is now returned to its place in the skin, which is in a condition for commencing the operation of stuffing.

A. B. B.

☞ A Chicago school marm while giving her class some oral instruction, in natural history, defined an amphibious animal as one that could not live in the water, and that died if you took it on dry land.

Hints for the Management of Gold Fish.—Gold fish may be kept ten or twelve years in vessels, (their average period of existence), by the following precautions: 1. Allow not more than one fish to a quart of water. 2. Use the same kind of water, whether spring or river water, and change it daily in summer: every other day in winter. 3. Use deep rather than shallow vessels, with small pebbles at the bottom (to be kept clean), and keep them in the shade, and in a cool part of the room. 4. Use a small net rather than the hand while changing the water. 5. Feed them with cracker, yolk of eggs, lettuce, flies, etc., rather than with bread, and then only every third or fourth day, and but little at a time. 6. Do not feed them at all from November to the end of February, and but little during the three following months.—*Ex.*

English Sparrows.—In the spring of 1866 four pairs of English sparrows came to the Union Square Park, New York, and there built. Three pairs occupied the trees, one ejected a wren from her little house, the only bird-house then in the square, and took possession; a fifth built in the ivy of Dr. Cheever's Church, facing the square. The industry of these little fellows in devouring the measuring worm (so great a nuisance that most persons avoided passing through the park, preferring to go around during their occupancy; and so numerous were they that they did not leave a leaf on any tree except the ailanthus), was such that boxes were provided on almost all the trees for them. They were very prolific, these hatched in the spring rearing a brood in autumn, and the old pair rearing four or five broods. In one year they increased from five pairs to a flock of seventy, and they are now estimated at six hundred. Last summer a reward of one dollar a head was offered for worms, but the birds had eaten the last one; they also eat moths, grasshoppers, and many other insects. These birds have extended about forty miles in every direction. The estimate that they destroy in Europe one-half million bushels of grain was probably correct; but how much, more or [illegible] did the insects they devour destroy? The question is, simply, which is the greatest evil, worm or bird, and which most readily controlled?—*Ex.*

Stock Department.

An American's Account of a Canada Stock Farm.

Mr. Sanford Howard, Secretary of the Michigan State Board of Agriculture, gives the following interesting details of a visit recently paid by him to Moreton Lodge Farm, Guelph:

"Fred. Wm. Stone, Esq., of Guelph, came from England and settled on land which he now owns, before it was surveyed, upwards of thirty years ago. He has now under occupation, in two farms, about eight hundred acres. Much of the soil of the principal farm, near the town of Guelph, required draining, which has been done with tiles to a considerable extent. It is very productive in grass, barley and oats. A large field of barley on a drained swale or swamp is very promising, and a field of twenty acres of oats, on another part of the farm, is the most luxuriant I ever saw—the oats standing thick and even on the ground to the height of nearly five feet. Spring wheat is grown instead of winter wheat, as being generally a more sure crop. Several large fields of this grain look well. Some fields of winter rye indicated a large yield. Roots, chiefly mangel wurtzel and swede turnips, are largely cultivated, that is, what a "States" man would call so, but not very largely compared with English practice. Mr. Stone usually has fifty acres a year. The crop is stored partly in pits and partly in cellars at the barns. The bulbs are chiefly pulped and mixed with hay and straw, according to the most approved English custom. Mr. S. thinks this much the most profitable mode of feeding roots.

The Stock bred by Mr. Stone consists of Suffolk horses, Short-Horn and Hereford cattle, Cotswold and South-Down sheep, and Berkshire swine.

Of the Horses, there are an imported stallion and three imported mares. The former is only three years old. He was bred by Thos. Crisp, of Butley Abbey, Suffolk, a well-known breeder of this kind of horses, as well as of Suffolk and Essex swine, whose *Show* stock I have several times looked at with much satisfaction in England. Mr. Stone's horse—or rather *colt*—is seventeen and a-half hands high, well proportioned, of strong bone, and good action. He has worked on the farm, at the plough, or whatever implement it was most desirable he should draw, every working day since the season opened. He works kindly, has a quick, lively walk, which carries him over a good deal of ground in a day, and does not tire or sweat much. He is in good condition—though doing service as a stallion, besides the work mentioned. The mares also work on the farm, and work well.

The Cattle consist of about fifty head of each of the two breeds mentioned, together with several grades of various ages, which are reared chiefly for beef, though heifers are occasionally selected and kept for milch cows. The origin of the Short-Horn and Hereford herds is so well known that I need not refer to it here. The number of prizes annually awarded to Mr. Stone, at Provincial and other shows, indicates the position which his stock occupies before the public.

Among the Short-Horns is the superb bull Grand Duke of Moreton, 5732, which took the first prize as a three-year old at Kingston last year—an animal of great weight for his age, and one of the best shaped I have ever seen of the breed. The even balance of his fore and hind-quarters, the obliquity of his shoulders, fulness of crops, depth and rotundity of carcass, the perfect straightness and great breadth of back, combine to make him one of the most majestic animals I ever looked at. Of the young Short-Horn bulls, several are very promising, particularly one about nineteen months old, by Grand Duke of Moreton, out of Duchess of York 3d, by Moreton Duke, 5225. He now promises to equal his sire in beauty, if not in size. Several cows of the Isabella and Marigaret tribes maintain their places in the herd, never failing to attract the attention of visitors. I have not space to speak of their respective points in detail.

The Herefords have latterly been increasing in numbers on the farm, and this increase will probably be allowed to continue. After seven years' experience with them, their good qualities have been so prominently displayed that Mr. Stone has determined to adopt them as a permanent stock. They are found to be healthy, hardy, easily kept, fattening rapidly whenever they have a fair chance, and producing the finest quality of beef. They are by no means the inferior milkers which the advocates of rival breeds frequently represent. Comparing them with the Short-Horns kept on the farm, all persons who have had anything to do with them concur in stating that the Hereford cows give, on the average, at least as much milk by the season as the Short-Horns, while some experiments that have been made show that in richness of milk the Herefords are superior.

I think Mr. Stone is entitled to the thanks of the public for the fair comparison he is making of the two breeds. We want just such means of ascertaining their real merits as he proposes us. The course too often adopted rests merely on the question of how the most money can be made by *speculating* in cattle. The profits which stock would afford if kept for ordinary products, and disposed of in the legitimate markets, are but little regarded; and we get but little light on the question whether one breed or another would be more profitable under given circumstances.

I have on former occasions spoken of the individual characteristics of some of Mr. Stone's Herefords. I will only remark here that the animals reared from year to year keep up the standard formed by the imported stock; and when it is considered that the original stock was *selected* from herds accounted among the best in England, this result must be regarded as of much importance in reference to the uniform excellence of the breed.

Many of Mr. Stone's grade cattle are half Hereford, and a few are three-quarters of that breed. They show the leading characteristics of the Herefords very strongly. Some of them are cows, now giving milk, and they are good-sized, handsome animals, with indications of being good milkers. A lot of yearling and two-year old steers are about as promising, in reference to thriftiness and fattening tendency, as any grade animals of their age that I remember to have seen. Some of the steers have been subjected to the yoke, and bid fair to make active and powerful oxen.

The Sheep consist of about five hundred head, three hundred and fifty of which are Cotswolds, and the rest South-Downs. They are all in fine condition. While I was there, Mr. Stone sold fifteen yearling Cotswold rams and two ewes to Mr. E. Whitby, for Dr. B. Bryant, of San José, California. The rams are to be used in crossing with sheep which have been bred from the old Mexican stock and the Merino. The result will be known in due time.

Mr. Stone has about thirty Cotswolds which he proposes to fatten next winter. Some of them would be called "hog-fat" now. If they go to "the States" when they are "made up," we shall probably see some of the fattest and heaviest carcases of mutton that have been known in the country. Mr. S. informed me that the fleeces of his yearling Cotswold rams (upwards of forty, I think,) averaged this year about eighteen pounds each, unwashed. One weighed twenty-four pounds. The sheep, after being shorn, weighed from 210 to 300 pounds—the weight depending, of course, much on the manner in which they had been fed.

Mr. S. informs me that, when he introduced the Cotswolds, there was nearly as strong a prejudice manifested against them as there was subsequently to the Hereford cattle. The sheep have nearly conquered the prejudices against them, and the cattle will probably do the same, if Mr. S. carries out his plan.

The South-Down sheep are bred from the Webb and other noted English flocks, and many of them are very handsome specimens of the breed.

Some of Mr. Stone's land lies so far from his principal farm steading, that it cannot well be manured in the ordinary way. Very large quantities of rich manure are made, but it is chiefly applied within a distance convenient to haul it. The mode adopted with the out-lying lots, is to feed off successive crops with sheep, until the desired fertility is obtained. First, a crop of rye is sown in the fall. If it gets strong enough before winter sets in the sheep are put on it. The next spring the sheep are turned on at the proper time, and the rye kept fed down as long as it continues to grow vigorously. When the growth of the rye is checked, the ground is ploughed, and sown to oats and vetches, which are fed off, and, when this crop is done, the ground is again ploughed and sown to rape or turnips, which are fed off in like manner.

Mr. S. has several fields where this course is now going on. His rams, which are intended for sale this fall, are on a field on which the second crop (oats and vetches) is just giving way to turnips and rape. The sheep are in high condition, and the ground is already well manured, though the feeding off of the third crop will enrich it still more. The sheep, of course, have been *well fed;* when the green crop would not afford them enough to eat they have had peas, or other additional food. The mode of feeding the green crops is that adopted in England, enclosing with hurdles a certain extent, on which the sheep are put from day to day.

This is a practice which I think might be introduced into this country with good results. Our people hear of the English farmers enriching their land by sheep farming. But it is quite a different thing from turning sheep on to the land, to live or die from the grass and weeds that may grow—often to gnaw the grass to its very roots, and starve the sheep besides. The sooner it is found out that *this* kind of sheep farming does not enrich the soil or its owner the better for the country."

☞ Cotswold sheep are said to be in greater demand in England now than ever before. At a late sale, 55 averaged $150 in gold.

☞ A Western editor relates a story of a man who bought a lot of hogs in Illinois and drove them slowly to Chicago. He was compelled to sell at a loss of $400. Returning home he was asked by his neighbours what were the profits of the operation. "Well," said he, "I reckon I didn't make much money out of the trip, *but I had the company of the hogs down.*"

VALUABLE IMPORTED STOCK.—The Montreal *News* says:—"The celebrated stock-beast which Mr. Cochrane daily expects from England, for which he has paid $5,000, is a heifer, we believe, of not more than two years old. This looks an enormous price, but the seller, far from abating his price, positively refused to sell the heifer unless he was furnished with proof that she would be taken out of the country and never brought back. It was only by binding himself down to fulfil these conditions that Mr. Cochrane was allowed to become the owner of the animal. He paid on a previous occasion $3,000 for a heifer which he bought in the United States, and the value of the stock on his Compton farm, when the English heifer arrives, cannot fall short of from seventy to eighty thousand dollars."

The Dairy.

Milking Cows before Calving.

I have practised taking it away for four years, in every case but one, which was a heifer that calved unexpectedly in the pasture. Her bag became considerably inflamed, but none of the others became so. A heifer coming four years old, dropped her second calf last night, March 20. Four days before, the 16th, I took three quarts; on the 17th three quarts; the 18th, six quarts; 19th, twelve quarts; 20th, ten quarts, and the milk all right for use now. She had been milked thirteen months, and had been dry thirty-five days previously. She has a very fine and large half Ayrshire calf. In my observation, milk rarely comes into the udder much more than thirty-six hours before calving; but when it does, I think it is better to be taken out, and by so doing have not known any injurious effects to follow.—LACTIS, *in N. E. Farmer.*

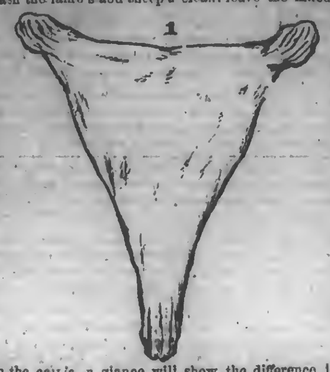
Rennet.

To the Editor of THE CANADA FARMER.

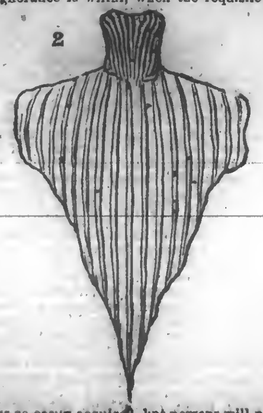
SIR,—I have been much surprised at the wilful ignorance of many who are engaged in the cheese factory business in Canada. As an example of not uncommon mistake amongst them, I may mention that most important article in cheese-making—one indeed that cannot be dispensed with or supplanted by any substitute yet found—namely, the inner coating or membrane of the fourth or true digesting stomach of the sucking calf, and commonly called rennet. It will be plain to any one who will reflect on the subject, that the best article to digest (it is at all events the first stage in digestion) a given quantity of milk is that which is taken from the animal whose natural food is the milk of the cow. The best rennets (or as they are called in some parts of Britain, *Vells*) are those taken from calves that have not eaten any other food than that obtained from the mother. Such rennets should not be objected to on account of the small size; for the quality of them is far beyond those taken from animals that are fed on herbaceous food. I do not wish it to be inferred that the large rennets should not be used, but that to use some of the small with them will be beneficial, and counteract the strong tone of the coarse ones.

Many persons have been deceived by buying sheep's maws. There is no excuse for such a mistake, as the difference between them and those of calves is very apparent. It is very important for the interests of the cheese business in Canada that in this matter, as well as in regard to cleanliness, and other necessary conditions of success, the manufacture should be carried on only by those who are thoroughly acquainted with all the details, and who will conduct the business with intelligence, care, and the strictest integrity. It is not likely to gain anything in the hands of the inexperienced speculators who take up the business one season and discard it the next.

Any person can discriminate the different kinds of rennets by a simple inspection. Let him take a calf's stomach, say one week old, that has had only the mother's milk, and when the stomach is empty—a lamb's—say four months old—and a sheep's of two years old—cut open all three, including the manyfold; wash the lamb's and sheep's clean, leave the mucus



on the calf's, a glance will show the difference in colour, shape, &c.; the manyfold of the sheep and lamb will be of a palish leaden hue, and the other of a greenish yellow, and the membrane of the calf's maw will be flesh-coloured, and uniform throughout; whereas the valves or folds in the lamb's and sheep's maw will be numerous and wide. The manyfold on these is also larger, and the valves deeper and serrated on the edges. That of the lamb of four months will be larger than the ordinary one from calves of one week, from the fact that a larger quantity of herbacious food is required in the former case. I have prepared one of each, and will leave them with you for the convenience of those who wish to see for themselves, and who may not have the means near at hand for taking the proper observation. There have been hundreds of sheep's and lambs' maws sold in Toronto to unsuspecting parties; few butchers in the city kill at a time so many as a score, yet they have these so-called rennets to sell by hundreds. Surely that ignorance is wilful, when the requisite know-



ledge is so easily acquired, but persons will not give themselves the trouble to make themselves acquainted with the plainest and simplest facts.

MARTIN COLLETT, Toronto.

NOTE BY ED. C. F.—The annexed illustrations, copied from the specimens left at this office by Mr. Collett, show the difference between the two maws, fig. 1 representing that of the calf, and fig. 2 that of the lamb, cut open and spread out.

Spots on Cheese.

To the Editor of THE CANADA FARMER:

SIR,—For a time, now, since the water in the well at our factory has been low, our cheese has on its surface dark spots, after standing on the racks from nine days to two weeks. These spots can be easily scraped off. Through the cheese there appear to be dark veins also; and it appears to be a little strong. The water referred to is what is generally termed sulphur water, it having a nauseous taste, and there collecting on the inside of the pump, a dark, slimy sediment, which feels quite gritty to the touch.

Now, what we wish to know is, can that appearance in the cheese arise from only soaking the rennets, and washing the cloths and vats with such water? We use English rennets.

J.

NOTE BY ED. C. F.—We think it not unlikely that the mould, or fungus growth (for such most likely it is), referred to by our correspondent, may be caused by the impurity of the water.

THE LAST MILK FROM THE UDDER.—D. Anderson says he has found by practical analysis in one instance that the last cup of milk drawn from the cow's udder contained sixteen times as much cream as the first one. This separation of cream from milk takes place in part in the udder of the cow, particularly if the cow is suffered to stand at rest for some time previous to milking. If there are people who doubt that there is a difference in richness of milk first drawn from cows and that of the last drawn, their doubts will be speedily removed by milking half a dozen cows and setting the first half drawn from each cow separate from the last half.—*Utica Weekly Herald.*

Entomology.

Entomological Queries.

To the Editor of THE CANADA FARMER:

DEAR SIR,—A few days ago, on looking at my young apple trees, I noticed at the extreme ends of the young wood, (1) a great quantity of small green lice, and a number of ants moving about after them. Curiosity led me to make a closer inspection, and on applying the microscope, I found the ants had an object in view in attending to those gentry. They would brush the lice with their horns and the lice would then eject a small quantity of fluid matter, in appearance like the gum which you will generally find on the tops of cones on balsam trees. I find that after a time those lice get transformed into a small black fly. As my trees are badly affected, I would like to hear from you (through the CANADA FARMER) if the insects are injurious to the trees, and also the best remedy for the evil. (2) I also enclose three caterpillars of which I have found a number this season. I find them very destructive to the young branches, completely eating off all the buds and foliage. I suppose the only remedy for these pests is to search for them and destroy them.

(3) I also enclose a few cocoons on a leaf, the first of the kind I have seen. I found three leaves covered with them on the same tree, and the leaves partly eaten, as the enclosed. (4) On another leaf you will find a number of cocoons or cells very small, and of a brown colour, grouped together in a small circle. By applying the microscope, they have the appearance of a shoe. I would like to have their history and habits. (5) You will also find a nest of insect eggs which are too often found in orchards. I would like to be informed what kind of an insect it is that deposits the eggs, so that it can be destroyed, as the caterpillars or worms the eggs produce are very destructive to the trees.

W. M. H.

NOTE BY ED. C. F.—(1) We gave an account of the very singular habit that ants have of *milking* the aphides, as described above by our correspondent, in

an article, entitled "Ants and their Cows," which appeared in the CANADA FARMER of Feb. 1, 1867, page 47. We are always glad to find our statements corroborated by the descriptions of independent witnesses, and also to learn that the many strange and wonderful habits and instincts of insects attract the attention of numbers of our readers all over the country. We can assure them that the more they investigate these marvels of nature, the more they will find to wonder at and admire, and the more pleasure they will derive from the contemplation. Plant-lice, or aphides, are of course injurious to any tree that is numerously infested by them, inasmuch as they draw away from it an immense amount of sap—the tree's life-blood. In the case of the apple and cherry, however, we think that where the plant-lice attack only the terminal shoots or new wood, they do more good than harm, as they act as a natural summer pruning, and by checking the excessive growth of the ends of the boughs cause more fruit spurs to be put forth lower down. Where it may be deemed needful to destroy these insects, we would recommend watering with strong soap-suds—a remedy we have found very efficacious ourselves. Our correspondent will find a short account of the natural history of the aphides in the CANADA FARMER of last year (Aug. 15, page 252), and a description with figures of their natural enemies in the same volume (Sep. 2, page 268). (2) These caterpillars were dead and shrivelled up when they reached us, and therefore hard to determine, but we believe them to be specimens of the yellow-humped caterpillar (*notodonta concinna*), of which we have given descriptions and figures in a foregoing article. This makes another locality for the insect.

(3) This is one of the oddest specimens that we have ever seen: a leaf with great nicks eaten into it, and on its under side seventeen—we hardly know what to call them. They are apparently the dead bodies of caterpillars, killed in the very act of eating, and enclosed in an ashy white silken shroud, through which appear the black warts and spines of the caterpillar's skin, and thus forming rather tough cocoons, fastened to the leaf with silken threads. They are all empty, and have each an irregular hole, apparently eaten through, near one end; inside them are the remains of a brownish chrysalis skin. We fancy the whole is the work of an ichneumon, which has eaten the original caterpillar, formed a cocoon of his skin, completed its transformation inside, and then eaten a hole through when ready to emerge as a perfect winged insect.

(4) This is another curious specimen, differing from anything we have seen before. On the under side of a portion of a leaf are grouped together in an irregular circle, with their tails on the outside and their heads pointing inwards, thirty-two empty chrysalides, probably of some tiny moth. Each one is about one-tenth of an inch in length, of a brownish color, and attached to the leaf by its tail, the head being free. The hole at the head, caused by the exit of the insect, gives them very much the appearance of a shoe or slipper, as observed by our correspondent. The empty condition of these, and the specimens referred to immediately above, prevents one being able to trace out the insect author of the work.

(5) This bunch of eggs is the first stage of the only too well-known tent caterpillar (*Clisiocampa Americana*), to which we have often referred in this journal. Our correspondent will find a full description, with illustrations of the insect in all its stages, in Vol. I. of the CANADA FARMER, 1864, page 237; he will also find a notice of it in Vol. II., 1865, page 34.

The Red-humped Apple Tree Caterpillar.

"A Subscriber," writing from Whitfield, Township of Mulmur, has sent us some of the above-named caterpillars, which he states "are busy cutting the leaves off his apple trees," and asks for information respecting their "origin, name, and habits, and how to get rid of them."

Nearly two years ago (Oct. 1, 1866), we briefly noticed the occurrence of this insect at Sidney, Co. of Hastings, but we have not met with it since, nor have we even seen the parent moth; we hope, however, to raise some specimens from the larvæ before us, and thus know for ourselves, and not merely from others, the whole history of the insect. As it has now appeared in such widely distant localities as the Counties of Simcoe and Hastings, it will probably be found in other parts of the country, and may prove as troublesome as it often has in the neighbouring States. We are inclined to think, however, that it has found its way to the localities mentioned on some imported trees, like many other plagues of our orchards and gardens. Should this prove to be the case, it will furnish another argument for encouraging the many highly satisfactory nurserymen that we have in this country, and buying our fruit trees exclusively from them instead of procuring them from the neighbouring States.

We now proceed to describe the appearance of the insect, that our readers may be able to recognize it wherever it is met with. The specimens before us are about three-fourths of an inch in length, but when full-grown they attain to nearly double these size; their general colour is yellowish-red above and below, and white on the sides, with thirteen narrow black stripes (six on each side, and one on the middle of the back) extending from the head to the tenth segment, interrupted only on the fourth segment; there are also two rows of black prickles along the back, and a number of shorter ones on the sides, each of which terminates in a fine hair; the head is shining red, with black jaws; the fourth segment has a prominent hump of an orange-red colour, on which, as well as on the two preceding segments, the prickles are lengthened into spines; the eleventh and twelfth segments are entirely yellow, with the various prickles, but without any black lines; the last segment is black. The eggs from which these caterpillars are hatched, are laid, according to Harris, "in July, in clusters on the under side of a leaf, generally near

the end of a branch. When first hatched they eat only the substance of the under side of the leaf, leaving the skin of the upper side and all the veins untouched; but as they grow larger and stronger, they devour whole leaves from the point to the stalk, and go from leaf to leaf down the twigs and branches." When full fed, they leave the trees and form a cocoon under leaves upon or slightly under the earth, where they remain all winter, the moth coming out the following July. It is called *Edémasia* (*Nolodonta*) *concinna*, and was first described by Smith and Abbott in their work on the Insects of Georgia, where it is said to have two broods in a year. It is described as "a light brown moth, with its fore-wings dark brown on the inner, and grayish on the outer margin, with a dot near the middle, a spot near each angle, and several dark brown longitudinal streaks along the hind margin." It expands about an inch. In the accompanying illustration, fig. 1 shows the Caterpillar, and fig. 2, the perfect Moth.

The easiest way to destroy this pest would be to shake off the caterpillars, by a quick jarring blow on the limb, into a cloth or vessel below, and then put an end to their existence with hot water. When they are collected on a small branch, it might be cut off and burnt without any injury to the tree.

CURRANT WORMS.

The above correspondent also states that "there is a small green worm, about three-fourths of an inch long, busy cutting the leaves off the red currant bushes; it does not appear to touch the black ones. Please tell us how to get rid of them. I dusted slacked lime over them, which seemed to check them for a few days, but they were soon as bad as ever; they do not touch the fruit, but strip off the leaves and pass on." These insects are the larvæ of either the well-known Saw-fly or the Currant Moth; not having received specimens of them we cannot say which. The remedy that is now acknowledged to be best is a mixture of white hellebore, powdered fine, and alum in water; the worms should be well watered with this when they first appear, and from time to time as fresh broods come out; of course care should be taken not to use the mixture when the fruit is about to be gathered. Soot dusted upon the insects when the dew is upon them, and also placed upon the ground beneath, is highly recommended by one of our American exchanges, but we have not yet tried it ourselves.

The Squash Bug.

(*Coreus tristis.*)

To the Editor of THE CANADA FARMER.

SIR,—Enclosed you will find specimens of something, I know not what. But this I do know, it is committing fearful ravages on some mock-oranges and gourds which my wife planted for ornament. It is extremely prolific. It lays an egg very similar to that of a sheep tick, but not so large. The egg requires but a brief period to hatch. I believe it will live more than a week shut up in a box. I send a good supply because I have enough and to spare. The leaves it infests wither and die. I have killed it until I am sick of the sight, to say nothing of the smell. I find coal oil sufficient for it, provided it can be got on the thing. I should like to know its name, &c.

E. J. YORKE.

Wardsville, Ont

NOTE BY ED. C. F.—Mr. Yorke certainly did send us a good supply of specimens of the disgusting Squash Bug; the moment we opened the box, about a couple of dozen crawled out with tremendous activity, and we had no little ado to get them all disposed of again. Being only too familiar with the insect, and having no desire to re-introduce it into our garden, in which we succeeded in exterminating it, for the present, after a considerable period of warfare we speedily consigned these lively specimens to an ignominious fate. In last year's volume of the CANADA FARMER (June 1, page 173), we gave a short description of this insect. The remedies that we there prescribed were picking off and burning the leaves on which the bugs are collected, examining closely the under side of all the leaves of an affected vine, and destroying any eggs found attached to them, and watering with hot water. The means that we have since found most effectual are picking off the leaves on which eggs are deposited, crushing under foot all the mature bugs, and watering frequently with strong soap-suds. The surplus product—soap-suds—of that domestic nuisance "washing day" we always have kept for us during the gardening season, and find it most useful for destroying a large number of insects, such as these squash bugs, plant lice, slugs on rose-bushes, etc.; it is also a valuable manure for almost any kind of vegetables and vines. Mock oranges or gourds, as well as squashes, belong to the same family (*Cucurbitaceæ*) as melons, cucumbers, and pumpkins; while these bugs abound on the former, we are glad to say that we have never yet met with them on the latter most valuable plants.

Correspondence.

Wild Oats—Huron Crops.

A subscriber from Huron County sends us the following, which, though bearing date the 1st August, did not reach us till after the publication of our last issue. "How can a person escape having his farm filled with wild oats if they are in the neighbourhood? Is there any possible means of guarding against their introduction by travelling threshing machines, &c.? By indicating the precautions to be used you will greatly benefit many of your subscribers. The crops in this part of the country look very well, considering the terrible drought and heat which we have experienced. We are now, however (Aug. 1), having most refreshing showers. The early sown spring wheat will scarcely be worth cutting, being completely eaten out by the midge; the late sown wheat as yet promises well. I have also been informed that Platt's midge-proof, where sown early, has not proved exactly midge-proof. Fall wheat (midge-proof) has turned out fair, mostly, however, not a first-class sample. We hear great accounts of the Treadwell. Can it be got in any quantity, pure, and at a reasonable figure? Peas are shrivelled up with the heat—will be half a crop—but oats are probably fully average."

NOTE BY ED. C. F. The only means we can suggest for guarding against the introduction and spread of wild oats is to keep a strict and diligent watch, and pull them up by the roots in the early stage of their growth. They will make their appearance before any other crop, and can be readily distinguished even in a field of oats, by their colour, their ranker growth, and greater height above the surrounding plants.

STUMP MACHINE.—S. G., from Cashmere asks:—"Where can I get a horse-power stump machine, capable of lifting a two foot green oak stump; and what will be the price delivered at Bothwell Station, Great Western Railway? A screw preferred."

REFUSE FROM FLAX MILLS.—A subscriber asks, what is the best manner of utilizing the waste from flax mills for agricultural purposes; whether it should be rotted, and if so, what is the readiest and quickest mode of effecting this object. Can any of our readers give any practical directions in the case?

SEED WHEAT.—Mr. Isaac O'Neil, of Uxbridge, sends us a sample of wheat, which appears to be of good quality. It is a white wheat resembling Soules wheat. The writer says respecting it:—"I enclose you a sample of fall wheat, a quantity of which I have for sale—200 bushels. It is about ten days earlier than the Soules. It will yield thirty-five bushels to the acre this year. It is a new description, first obtained by finding a few heads in a large field. I have sown it for the last two years, and now have the above quantity. It is a white chaff, white wheat. Labour was very scarce this year, and I had to let it stand too long; otherwise it would have been brighter. The price is $2 per bushel. I reside one mile from Uxbridge Village, Ontario."

DÉCAY IN THE CROTCH.—BARREN BLOOMING.—A.T.G. writes to enquire "the cause of fruit trees (more particularly apple trees) decaying in the crotch and around the limbs. The trees are from eight to ten years old. Also, why some fruit trees continue blossoming during the summer instead of bearing fruit. I have some dwarf pears that are more ornamental than useful on that account." The decay in the fork of branches may be owing to some splitting of the wood in that situation, or to the wet and dirt that have accumulated there. Cleaning out the part and a coating of lime-wash might be useful in that case. In regard to the second query, some unhealthy condition of the tree is perhaps present, and possibly the drought and heat of the past summer, unfavourable to the proper development of the fruit, may have stimulated dormant buds into unnatural and premature growth. Without further information and personal inspection, we could not form a more definite opinion.

QUERIES.—A correspondent from Wardsville appends to a communication published elsewhere a miscellaneous collection of queries. In answer to some of them, we would inform him that the Secretary of the Provincial Association is Hugh Thomson, Esq., Ontario.—Amongst the successful breeders of Galloways in this Province are Messrs. R. L. Denison, Toronto; Wm. Wood, Guelph; Thomas McCrae, Guelph; and D. Youle, Stanley.—The ordinary horse bean would furnish the best meal for the purpose alluded to.—In reference to the Berkshire hog, it would be impossible to give an account of the numerous crosses from this breed—the principal foreign ones are those with the Chinese and Neapolitan swine, made with a view of decreasing the size of the animal, and improving the flavour of the flesh; and the animals thus obtained are superior to almost any other in their aptitude to fatten, but are very susceptible of cold from being almost entirely without hair. A cross of the Berkshire with the Suffolk and Norfolk pigs is also much approved in some quarters; a hardy kind is thus produced, which yields well when sent to the butcher; but even the advocates of this cross allow that, under most circumstances, the pure Berkshire is the best.

The Canada Farmer.

TORONTO, CANADA, SEPTEMBER 1, 1868.

The Season and Crops.

ALTHOUGH the persistency of the wide-spread drought from which the whole continent has so long suffered is at length broken, still comparatively dry weather continues to prevail in most parts of the Province. Occasional showers have visited every locality, but we do not hear of heavy or long continued falls of rain. Root crops, especially potatoes, are nearly everywhere needing moisture, and under any circumstances we must now look for a yield of those products below the average. The temperature has very greatly moderated, and the weather has been mostly fine and delightfully cool. Indeed it would scarcely be possible to have a pleasanter season than has prevailed during the greater part of the month of August. The returns of the harvested crops, so far as we can learn from local papers, are less unfavorable than the severe drought would have led us to anticipate. The results of threshing operations, which have been actively going forward, do not disappoint expectations, and in the case of fall wheat especially show a yield in excess of the returns of any recent year. We hear of crops that have turned out over forty bushels to the acre. The Soules wheat has suffered most from the midge, while the Treadwell and Diehl are both spoken of as having comparatively escaped the scourge, and yielding remarkably well. We expect that a large breadth of land will be sown with these varieties during the present month.

The importance of correct statistical returns in regard to our crops is becoming every year more apparent. We are glad to learn that the Minister of Agriculture for this Province, with a view of eliciting the desirable information, is issuing a circular and list of enquiries to the various agricultural societies of Ontario. If these enquiries are carefully answered by the parties addressed the department will be in possession of very valuable reports, the substance of which will, no doubt, in due time be given to the public. As this is the first year that any attempt of the kind has issued from this official quarter we cannot expect the returns to be so complete as they should be; but the effort is in the right direction, and will eventually secure, we trust, a yearly statistical report, complete and accurate, of the agriculture of the country.

The crop reports from the adjacent States, which appear to have suffered less from the drought than ourselves, are very encouraging; and if the published estimates are correct, the total yield of wheat will be considerably above that of 1867—indeed, some accounts say of any previous year. An Iowa Editor speaking of the harvest in that State, calls this the "golden year," and pictures the agricultural prosperity of the State in glowing terms. Perhaps some of this congratulatory tone of language and feeling may be the reaction from the fear and despondency which the severe and protracted drought had induced, and the test of the threshing machine may yet correct expectations that have been as much too sanguine as they were previously too doleful. There can be no doubt, however, that we have much cause for thankfulness in regard to the general character of the present harvest, and the result should rebuke the spirit of apprehension and discontent which farmers perhaps more than others are apt to indulge.

Seed Wheat Experimental Farm.

MR. George A. Deitz, of Chambersburg, Pennsylvania, is engaged in the important work of acclimating and testing foreign seed wheats. Since the appearance of his brief advertisement in our last issue, we have sent for and read with much interest his circular, which describes with considerable minuteness a number of varieties of seed wheat with which he has experimented successfully. We have always felt that this is a department of usefulness which properly belongs to Ministers and Boards of Agriculture, and we thoroughly believe that judiciously managed, as it might be under the supervision of a good practical farmer, the testing of foreign seeds might be made immensely beneficial to the agricultural interests of our own and other countries. In the absence of any such arrangement, it is gratifying to find that private enterprise is doing something in this direction. Mr. Deitz's circular contains details and illustrations of the heads of twenty-one varieties of wheat, that have been tested for from two to ten years, with mention of eight varieties only imported the present year, and therefore not yet tested on American soil. The account given of the several varieties appears candid and straightforward. We know nothing of Mr. Deitz beyond his advertisement and circular, but the importance of obtaining new and good seed wheat is so great, that we do not hesitate to recommend trial of the more promising sorts. It is not yet too late for any who are enterprising enough to experiment, to do so. We have sent for three varieties which, judging from the circular, we think most likely to give satisfaction in our soil and climate. They are the Benghton White, $5 per bushel; the Weeks' White Bearded, $6 per bushel; and the French White Chaff Mediterranean, $7.50 per bushel, American money. The prices are high, but there is much outlay and loss connected with the importing and trial of foreign seeds. In due time we shall give our readers the benefit of our opinion of these wheats.

PROVINCIAL EXHIBITION PRIZE LIST.—CORRECTION.—An error occurs in the above prize list which we are requested to notice and correct. In class 29, section 32, in the "General List" of Fruits, &c., for—"Best collection, not more than six varieties, Pears, correctly named, three of each," read—"not more than *twenty* varieties," &c.

Stray Notes of Travel in the United States.

[EDITORIAL CORRESPONDENCE.]

NEW YORK, Aug. 26, 1868.

WHAT you see when on a journey, or in a strange place, depends quite as much on your own eye as on the objects that are about you. This is true, not merely in a literal, but also in a metaphorical sense. The artist is on the look-out for scenes of beauty, the merchant has an eye to business, the politician studies the phases of public opinion, and the ladies keep a sharp watch of the fashions. An editor travels with his thoughts dwelling much on his next issue, and his eyes peering sharply around for the material of leading articles. If the journal about which he is anxious be general in its scope, he will have no difficulty, for topics will spring up on every hand. But if his journalistic sphere be a special one, his observations will be less fruitful. Still it will be a barren journey indeed, if it yield nothing to his purpose.

Railroads, it is well known, do not usually pass through the best portions of the farms they cross, and hence it would be hardly fair for an agricultural editor to judge the farming of a region by looking at it from the cars. Taking the evening train from Suspension bridge, there was but a short period of daylight in which to see things. It gave opportunity, however, to observe that Western New York has been passing through the same ordeal of heat and drought with which our own country has been afflicted. Long as the eye could distinguish objects, there was the same yellowness about the pastures and meadows, the same stunted vegetation, the same burnt-up look we had left behind us in Her Majesty's dominions. When morning dawned, however, a very different picture was presented. As our train neared Albany the corn fields on the Mohawk flats rose to view all fair, fresh, and green, as if no pinch of drought had touched them all the season. We saw once more, vegetation glistening with dew and rain, and the earth moist with showers. It was indeed a welcome and refreshing vision, and enabled me to realize, in a measure, how oriental travellers must feel when, after journeying for weeks over the desert, they gain at length the verdant valley of the Nile.

There cannot be a more delightful sail than that in the day-boat from Albany to New York, on the Hudson. This noble river has been not inaptly styled "the Rhine of America." Its ample bosom stretches from bank to bank, a mile or more in width, and on either side it is one panorama of natural and artificial beauty, the scene continually shifting, but always attractive and picturesque. Villas and gardens, towns and villages, wood-crowned heights, mountain ranges, and lovely intervales, diversify the landscape, while the river itself, winding along in stately majesty, and alive with all manner of craft, from the skiff up to the mammoth passenger steamer, is an object of tireless interest. The railway trains thundered along the river side, leaving our vessel far in their wake, though she nobly steamed away at fifteen knots an hour; but the day was only too short, and the trip too like an enchanting dream. As you near New York, many charming residences line the river, their ample grounds reaching to the brink of the stream, and the very boat-houses catching the contagion of the scenery and becoming tasteful, if not elegant. Commend us to a home on the Hudson, when we retire from active toil with an ample fortune!

After the day's charming sail, we passed the night (we were about to say slept) at lower Ravenswood, on East River, opposite Blackwell's Island, and never before listened to such a noisy insect concert as was kept up all the livelong night. Sleep was out of the question. We have been kept awake before this by in-door insects, but never until now, so far as we can recollect, by insects out-of-doors. Such an orchestra of stridulous music would, no doubt, have put our entomological confrere into ecstacies. We cannot say it had that effect on us. The Katydids were the noisiest of the choir, and weary enough we got of the constantly-threatened-to-be-told tale of what "Katy did," before morning. But though we never before heard so powerful an insect orchestra, it was thrown completely into the shade by the one that performed three nights afterwards at Athens, a village 100 miles up the Hudson, which we had occasion to visit. We have got a vastly enlarged idea of the vocal powers of the Cicada. But though it can be loud, it is far from pleasing, at least in our judgment. It may be, however, that our taste needs educating, duly to appreciate insect music. We thought of the ungallant couplet of old Aristophanes:

> "Happy the Cicadas' lives,
> For they all have voiceless wives;"

and wondered to what pitch of dissonance the domestic music would rise, if both sexes were but to perform their parts.

Many agricultural items may be picked up in New York, as we begin to find after a few days' sojourn in and near the city. It is interesting to visit the markets. Just now quite a panic exists in reference to diseased beef. Notwithstanding the utmost precaution on the part of the authorities, it is said that cattle affected by the Texas plague have been spirited to this city, and their carcases vended in the meat markets. Beef-steak, that favourite American dish, is quite out of repute, and, much against their will, the people are taking to mutton, for fear of being poisoned. Fowl are scarce, fish are hardly in season, eggs are dubious, butter is dear, and milk as well as beef may be spoiled by Texan fever; so that the question, what to eat, is not the easiest New Yorkers have to discuss just now. Happily the vegetables are wholesome, and there are plenty of them. The market-gardeners that supply New York have had no cause to complain of lack of rain the present season. If anything, they have had too much. How glad we should have been to relieve them of all they wanted to spare! Potatoes are a fine size here, and they seem to be abundant. Yet they are far from cheap;—two dollars a bushel, American currency. All vegetables bring a high price here, as compared with Canada. The fact is they are grown at immense cost, and must be dear. Land within market distance of New York is enormously expensive, and without the best of tillage and high prices, market gardening could not be profitably carried on. There are plenty of tomatoes, musk and water-melons, lima beans, and green corn in the New York markets just now. Sweet potatoes from the South, a much coveted luxury here, though in our view not to be named the same day with a mealy pink-eye, or Scotch kidney, are abundant, and go at the hotel tables in a galloping consumption. Fruit is scarce, and high in price. A single decent plum costs you three cents, and a good peach from eight to ten cents. Red Astracan apples are from three to five cents, and Bartlett pears as dear as the peaches.

Owing to the dry weather in Britain, the steamers from this port are taking novel freight across the Atlantic. Several shipments of hay, tightly baled, have been already sent, and more are to follow. Some of this hay that we have seen is rascally stuff, coarse, wiry, prairie and swamp grass, that will provoke from British farmers and shepherds curses loud and deep. Why cannot Canada do something in this trans-Atlantic hay trade? All that is wanted is pressing and baling machinery. The utter failure of hay and turnips in Britain, makes it certain that such an export business will be remunerative from now until next harvest. First-class machinery for pressing and baling can be had here, from R. H. Allen & Co., Water Street, New York, and others in the agricultural implement trade. By the way, an inspection of the Messrs. Allen's premises justifies all that we said when giving a synopsis of their voluminous catalogue in the CANADA FARMER some month since. It is a very complete establishment, and the implements are of first-class manufacture.

We spent five or six hours very pleasantly in Central Park yesterday. The purchase and laying out of this large tract of what was originally rough waste land, as a vast pleasure-ground, was a magnificent conception. Here are some nine hundred acres, that during the past ten years have been transformed from wilderness to Elysium. We are not sufficiently familiar with landscape gardening to venture the opinion that the plan of these grounds is the best imaginable, but as we surveyed them, we vainly tried to think of something that would be an improvement. There is nothing stiff or formal about the style of adornment that has been carried out. Winding paths, miscellaneously grouped trees, irregularly planted shrubs, and flowers that seem to have come where they are quite by accident; lakes here, fountains there, rustic seats and arbors yonder; rock-work, now on a limited scale, and now in mimic mountain grandeur; with a roomy carriage drive, nine miles in length, smooth and even as though shaped with a housewife's rolling-pin, gracefully curving here, there and everywhere—form a scene of natural and artificial beauty that must be seen to be appreciated. Here pedestrian Five Point poverty and wretchedness is as free to roam as mounted and equipped Fourth Avenue wealth and gayety. The varieties of character and condition to be seen here are quite a study. Beneath yon cozy little arbor that shades a seat just large enough for two, are a couple of lovers, telling and listening to "the old, old story" with which Cupid charms his votaries. There on a rise of ground, seated on one of several seats in a larger rustic edifice, is a pale-faced student with book in hand, drinking in health and knowledge at once. Near him, on another seat, is an aged and spectacled man reading a magazine. A little farther, a care-worn woman with a babe in arms, and another little one by her side. Yonder in a single-seated lonely recess, is a sorrowful young creature, who looks as if she had grown weary of life and were debating whether or no to renounce all this beauty, and "rashly importunate" go to her death. Fast young men lounge here and there, with misses to match them not far off. But the diversity is well-nigh endless. New York may pour out its millions, and these avenues, walks, arbors, grottoes, terraces and seats will not be crowded. The lake is a curiosity. This whole formation is rocky. Here and there natural rock-work shows itself and gives great boldness to the scene. To form the lake-bed, the rock has been blasted fully a mile in extent, but not all in one large area. There are straits, channels, points, promontories and islands. A fleet of twenty-seven boats equip this lake for voyaging, and for ten cents you may have a sail from end to end of it. Swans of large size and magnificent plumage float on the bosom of the water, and add much to the beauty of the scene. At the upper part of the park you find the highest point. There, on a rocky eminence of considerable elevation, you may see on the one hand Croton reservoir, and on the other New York itself, which owes so much to that reservoir. Croton water and Central Park are fountains of health to this great city, with which it could not well dispense.

But this letter, already quite long enough, must close, leaving us lingering in the loveliest spot we have seen since leaving home. You too, gentle reader, would feel like lingering in Central Park, were you in it, we can tell you.

VICK'S ILLUSTRATED CATALOGUE OF BULBS.—We have received a copy of Vick's Catalogue of Bulbs for the present autumn. The list is full, and accompanied with clear and simple directions for the culture of the several varieties. The name of Mr. James Vick, of Rochester, N. Y., is sufficient guarantee for the excellence of any article advertised by him in this department of Horticulture.

The Texas Cattle Disease.

THE alarm, amounting to panic, caused by the fatal disease introduced into Illinois, Indiana, and some of the Eastern stock yards, by Texas cattle, has in a measure subsided, not on account of the discovery of any exaggeration in the reports of losses sustained, or the virulence of the complaint, but chiefly from the apparent facility with which the spread of the disease can be prevented. It would appear that Texas cattle alone are capable of communicating the disease, and that native cattle, though fatally afflicted themselves, do not transmit the virus to others. It is believed also that only during certain limited periods of the year is there any danger from the disorder. If these statements are correct, it is probable that by regulating the periods at which Texas cattle may be introduced, by a system of inspection and quarantine, and by isolating the droves in transitu, the future ravages of this terrible scourge may be guarded against.

There is every reason to believe that hitherto we have ourselves escaped the pest. The Canadian Government and the Board of Agriculture have acted in the matter with praiseworthy promptitude. By an order in Council the transit of Western cattle through the Province has been interdicted. A special meeting of the Board of Agrienlture was convened to take the subject into consideration, and the following resolution, among others, was passed:—"That a Committee, consisting of the President of the Board of Agriculture, the President of the Association, Dr. Richmond and Mr. Stone, oe appointed to examine into the cattle disease, and report at as early a day as possible; and that Professor Smith, of the Veterinary College, Toronto, be appointed to accompany them." The gentlemen named in the above resolution accordingly proceeded at once to Chicago, intending thence to visit other localities where the disease had been most prevalent, and institute a thorough investigation. Up to the present date, Aug. 28th, they have not returned, though we have been waiting in the hope of being ablo to communicate their report in the present number of this journal. This must now be deferred till our next issne. By that time also the report of the Commissioner whom the Government has appointed to investigate the matter will no doubt be made public.

Since the above was in type the Deputation from the Board of Agriculture have returned, and Mr. Smith informs us that it will yet be some days before they can complete their official report. In the meantime we may briefly state that they found the complaint on the decrease in Illinois, partly because in some places a large proportion of the native cattle had died—in Champaign County upwards of 4,000 have perished—and also in consequence of the restrictions now in force in regard to Texas cattle. Mr. Smith thinks the prevailing opinion that native cattle will not communicate the disease should be received with caution; that time and further experience are yet needed to determine this point, as well as much more respecting the precise nature of the disease. It has made its appearance in Kansas, also in St. Louis and Sullivan, in Missouri, and in Cincinnati. Under all the circumstances the Deputation are of opinion that it will not be wise to relax the interdict ngainst the admission of Western cattle into Canada.

The Provincial Exhibition.

THE Provincial Exhibition at Hamilton this year promises, in the number of entries, to be fully equal to any of its predecessors. The condition of the crops is looked on as a circumstance favouring a good show, and the entries of grains, especially wheat, have been above the average. As the entries are not all made, and a large number of those sent in have yet to be recorded, no figures to show the aggregate in each class can be had, and it will be close on the Fair week before a correct estimate can be made.

The entries for live stock closed on the 25th ult., but as all have not yet been registered, we cannot give the exact figures. "In the classes of horses, cattle and sheep, there will be a large exhibition, the show of pigs will be below the average in number, while that of fowls will probably be very numerous. On the whole, there is every reason to expect a large and, we doubt not, a creditablo and successful Exhibition.

Book Notice.

A GUIDE TO THE STUDY OF INSECTS, AND A TREATISE ON THOSE INJURIOUS AND BENEFICIAL TO CROPS.—For the use of Colleges, Farm Schools, and Agriculturists. By A. S. Packard, Jr., M. D., Salem. Press of the Essex Institute. Part II., July 1868. Price 50 cents.

The second part of this valuable work is now before us, and we desire again to cordially recommend it to the attention of our readers. The present portion of the work consists of sixty-eight pages, clearly printed on fine smooth paper, and illustrated by about fifteen wood-cuts, and two full-page plates carefully and accurately executed. It gives first the conclusion of the account of the strange and marvellous transformations of insects throughout their life, from the egg to the winged imago; then follows an outline of their geographical distribution, including a notice of variation of species produced by climate, soil and food, and the remarkable fecundity possessed by noxious insects accidentally introduced into this continent from Europe, of which the wheat-midge and currant-bush saw-fly are notable instances. A somewhat kindred subject, their geological distribution, is next taken up, and notices, accompanied by illustrations, are given of many singular fossil specimens that have been discovered in the coal measures of Nova Scotia, New Brunswick and other carboniferous districts. When the delicate fragile structure of insects is considered, it is very wonderful to find how many specimens have been obtained from the solid rock. The diseases and deformities of insects, a branch of entomology that has been seldom investigated, are briefly noticed; then follows a most useful and valnable account of the best modes of collecting, preserving, and rearing insects, which we would strongly recommend to the attention of all insect collectors; a useful list of the most important works on entomology, and tables of the various modes in which insects have been classified by authors, complete the preliminary portion of the work. A systematic account of the various orders of insects is then begun,—the order Hymenoptera, which includes bees, wasps, ichneumons, saw-flies, etc., being first taken up, as holding the first and highest rank in the insect series. This part of the work well deserves the careful perusal of all interested in the habits and works of bees and their enemies, and therefore ought to be in the hands of every bee-keeper in the country. Of the whole work, judging from the two parts now issued, we may say that it furnishes to beginners in entomology a manual of directions superior to any that we have ever before met with, while to the more advanced student it affords a convenient and useful book of reference.

PRIZE LISTS.—We have received, amongst other documents of a similar nature, the list of premiums for the forthcomiog Agricultural Exhibition of the New York State Agricultural Society, and also that of the Michigan State Agricultural Society. The former of these, as already announced, will be held in Rochester, from the 29th September to the 2nd October inclusive; and the latter in Detroit, from September 15th to the 18th—the weeks preceding and following the Provincial Exhibition at Hamilton. The premium lists embrace all the usual departments, and are on a liberal scale. Additional prizes are also offered for the best crops of various kinds, and for the best essays and reports of experiments on certain specified subjects. The directors of the New York Society wish especial attention to be directed to their new regulation requiring that all entries of cattle, horses, sheep, swine, poultry, and machinery should be made at least two weeks before the fair.

SELL'S CIDER MILL.—We direct attention to Mr. Sell's advertisement of Cider Mills, in the present issne. These well-made and thoroughly efficient presses have gained distinction wherever they have been exhibited, and have given entire satisfaction to those who have used them.

MUSKOKA SETTLER'S GUIDE.—We have received a small sheet bearing this title, and published by the Muskoka District Settlers' Association. We presume it is intended to follow up this first number by others from time to time, as matter accumulates and occasion requires. The present number is chiefly occupied with an account of the origin, objects, history and recent meeting of the Association. It contains the President's address, and a paper on the district of "Muskoka as a field for settlement," full of valuable and interesting details, given apparently in an honest and impartial spirit. We commend the example and efforts of the Association to disseminate trustworthy information concerning a region hitherto little known, and very sparsely settled, but offering by all accounts many inducements to the hardy and enterprising emigrant.

Agricultural Intelligence.

Show at Aberdeen of the Highland Society.

To the Editor of THE CANADA FARMER:

SIR,—The forty-first exhibition of this venerable society, which may be regarded as the parent of all British agricultural societies, is just concluded. The good old "granite city" has been full to repletion, and everything appears to have been done that was practicable, both by the directors of the society and the citizens generally, to accommodate visitors and make the occasion what it has proved, a great success

I may just state for the information of some of your readers that the "Highland Society" was first established by royal charter as far back as 1787, and that its sphere was confined to the more alpine districts of Scotland, as its name denotes. For many years previous a society had existed in Edinburgh for the improvement of land, consisting mainly of the great landholders; but it does not appear that this society attracted much public notice; yet it published its transactions and unquestionably led the way for the formation of the Highland Society. As, by degrees, it became apparent that the Society's operations should not, and in strict practice were not, exclusively confined to the Highlands, an amended charter was obtained in 1834, and the name of the society thenceforward has been known as "The Highland and Agricultural Society of Scotland." Under its enlarged charter the Society has not only sustained in a spiritod and liberal manner a yearly show of stock and implements, but devoted periodically a large amount of funds to the preparation and publication, by way of premiums, of essays and reports on the theory and practice of husbandry in all its various applications. It was also, I believe, the first British Agricultural Society that engaged the services of a Professor of Chemistry; the late Professor Johnston had the first appointment, who was succeeded by the present accomplished chemist, Professor Anderson. The society also gives aid to local shows, and has of late encouraged the study of the science and practice of agriculture by awarding diplomas to young men, who undergo satisfactorily certain courses of examination. In this way the society has been able to obtain most valuable materials for publication, and the large number of volumes in its transactions shows the talent and liberality with which its proceedings have so long been conducted.

The only thing worth mentioning that I have heard of, disadvantageous to the present show, arose from some unfortunate misunderstanding between the exhibitors of Clydesdale horses and Argyleshire cattle

in the vicinity of Glasgow and the railway managers, relative to the transport of the same to and from Aberdeen. The consequence was that these important classes were but very indifferently represented here; and a show was got up in Glasgow on one of the same days as the Highland; a circumstance liable to an unfavourable interpretation, and in every way deeply to be regretted. I am informed by a gentleman who was present that quite a number of animals of very excellent quality was got together at Glasgow, and prizes awarded of equal value to those of the national society. Considering this drawback and the character of the season, the Aberdeen show must be regarded by its friends and patrons with no small degree of satisfaction, if not of pride. About fifteen acres of the "Links," a large undulating space between the city and the sea, were walled in, and it was found only just large enough to comfortably accommodate exhibitors and visitors. The judging commenced on Tuesday morning, and was got through with by two in the afternoon. The public were admitted during the period of judging on the payment of ten shillings; the remainder of the day and the next day, the fee was reduced to half a crown, and to one shilling on the third and last day. By these arrangements there was no overcrowding, and all classes had an opportunity of inspecting comfortably and fully each department of the show.

I could not, perhaps, give your readers so adequate an idea of the exhibition as by stating the aggregate number of animals entered in each class:—

Short-horn Bulls	42
" Cows	30
" Heifers	48
Aberdeen or Angus Polled Bulls	40
" " Cows	21
" " Heifers	25
" " Oxen	9
Galloways, Polled Bulls	7
" " Cows	4
" " Heifers	11
West Highland Bulls	14
" " Cows	17
" " Heifers	20
" " Oxen	9
Ayrshire Bulls	8
" Heifers	8
" Dairy Cows	17
" Fat Oxen	24
" Fat Heifers	11
" Crosses	8
Total	373
Horses	139
Sheep	832
Swine	57
Poultry	480
Grand total	1881

The number of machines and implements, and other articles included in that department, amounted to 1158. As the exhibition was open to competitors from all parts of the United Kingdom, the implement department comprised seventy-eight Scotch, twenty-six English, and two Irish exhibitors; making a total of 106. The number of exhibitors in the live stock departments was 285, and these, with very few exceptions, were Scotch. The distance of Aberdeen, coupled with the fact of the show being held so soon after that at Leicester, will sufficiently account for the small number of English exhibitors.

In a communication of this kind space will not admit of many particulars, most of which would not possess much, if any, interest to your readers. The Short-horns were not only comparatively numerous, but of excellent quality; the bulls particularly, it was said, had never been excelled. Mr. Cruikshank, of Sittyton, in this county, who it is said has the most extensive herd of Short-horns in the United Kingdom, exhibited a splendid old bull, "Forth," the finest handler I ever met with,—though I heard it stated by several parties who had watched his career, that his symmetry was less perfect than formerly, and that high feeding and preparing for shows had produced a deteriorating effect upon him, as it has often done on too many of our choicest animals. Mr. Barclay's fine bull, "Heir of Englishman," which I saw at Leicester, where it attracted general attention and received from the judges a "highly commended," here obtained the first prize. The two-year old bulls, as a class, perhaps were not in point of symmetry equal to the aged class; Mr. Cruikshanks' "Grand Prince" was placed first, and a finer looking animal one seldom sees. The yearling bulls were unexceptionably good. Of the cows and heifers it may be said, with some few exceptions, that they contained specimens rarely excelled—all the leading points well and harmoniously developed, that characterize the modern Short-horn. Mr. Ainslie's "Thistledown," two years, a faultless animal, won the first prize. Several eminent Short-horn breeders in the Lothians were absent; but the young stock in particular was of a high character, indicating progress in the future.

The Polled Angus, or Aberdeen, was after all the breed that gave a decided character to the show. All I can say myself, not having any experience of this breed, is that they are very beautiful animals, having the expression and points that indicate a distinct type. Those who have a practical knowledge of the breed spoke of the specimens exhibited as surpassing all former occasions. In this north-eastern section the Polled Angus has for many years received special attention, and here, if anywhere, perfection, or something approaching it, may be reasonably looked for. Mr. McCrombie, of Tillyfour, whose farm I hope to have the pleasure of inspecting before leaving the country, took a prominent position in this class; his herd is thought to be unsurpassed, both as regards extent and character. The Polled Galloways did not muster in great numbers, and as a class were considered to fall below the Angus, yet there were some very fine specimens of this valuable breed. To the ordinary observer the Angus and Galloway will appear almost identically the same, but the practical eye detects the difference. The former usually attain a greater size, have a less shaggy coat, and are better adapted to a dry climate, like that of the east coast of Scotland. The Galloway is found well suited to the soils and climate of Canada; few have yet tried the Angus, which I have little doubt would be found to endure our dry cold of winter very well. As beef cattle, both breeds are held in very high reputation in Britain, and command high prices.

I naturally felt much interest in the Highland class, a type of animal so very different to the larger breeds one has all along been accustomed to. The West Highlanders, I was assured by competent judges, were quite up to the mark, and they certainly have all the characteristics of a distinct breed, specially adapted to the soil, climate and exposure of the bleak and mountainous parts of the country. The Duke of Athol showed several beautiful specimens, as also did others of less note. As the beef of this hardy race fetches from eight pence to ten pence a stone more than that of the larger breeds, in London and other great markets, more attention has of late years been paid by hill farmers to the breeding, feeding and protection (at least to some extent) of the Highland cattle; the consequences are greater size, earlier maturity, and a more thorough intermixture of fat and lean in the flesh, which becomes thereby greatly improved.

The Ayrshires, for reasons already stated, were poorly represented. There were a few specimens of decidedly superior animals, denoting strict attention to breeding and good management. In Canada they would be considered rather small. While looking at this class, I accidentally fell in with Mr. Laurie, of Scarborough, Ontario, who was inspecting the show yard with a view to procuring something to take back with him. All really good animals for breeding, whether horses, cattle, sheep, or swine, are held at very high prices.

I was not prepared, especially during such hot weather, to find so large and good a display of fat cattle. The Short-horn in weight certainly excelled but the Polled Angus came well up to it, and finer animals one need not care to see. The Short-horn bull is commonly employed to cross with the Polled, and even the West Highlanders, and the result is, I am informed, very satisfactory; for slaughter of course not for breeding from. Not a single specimen of a Devon or Hereford was on exhibition, these breeds being hardly known in Scotland.

The show of horses was not equal to former years, mostly in consequence of the large number of Clydesdales from the south-west not putting in an appearance. The cart horses would be considered too heavy in Canada, though some, both mares and stallions, evinced good action in connection with great muscular power. The truth is, heavy horses are only suited for drawing great weights at a certain and comparatively slow pace, and to combine the two opposite conditions of great weight and quickness of action in the same animal is physically impossible. There were some good specimens of thorough-breds, roadsters and ponies; some of the former seemed excellently adapted for breeding saddle and carriage horses. As the roads in the United Kingdom have of late years been brought into so smooth and perfect a state, carriages of all descriptions have become lighter than formerly, and consequently horses for locomotive purposes are less massy.

The display of sheep was not so extensive as I had expected, particularly in the mountain breeds. The Leicesters, on the whole, were decidedly good, the best it is said that have ever been seen north of the Tay. The few Southdowns exhibited indicated a coarseness not pleasing to a Southern eye. They were, no doubt, large and strong constitutioned animals, well adapted perhaps to the situations in which they were located. The Shropshire Downs were good, and this useful breed seems to be extending in every direction. Both the Cheviots and black-faced sheep were very limited in number, a fault which their superior quality, in great measure, made up. The heather sheep of the mountains I regard as the prettiest specimen that can be found among the various British breeds, and their practical management among the hills and narrow valleys of the Highlands is a most interesting study to a lowland farmer. Their flesh is peculiarly delicate, and commands the highest price. These sheep, like the West Highland cattle, have been much improved of late years by more attention being paid to breeding, feeding and shelter; though yet, I am told, it continues widely the practice to let them in great measure forago for and take care of themselves.

The swine department was also restricted as regards number, which I am told is usually the case in most of the Scottish shows. For quality, however, I never saw better anywhere. Mr. Duckering, of Lincolnshire, and Mr. Findley, of Glasgow, with others that could be mentioned, exhibited a number of animals that could not well be excelled.

In poultry the competition was not great, but there were specimens of high merit in several of the breeds. Some of the ducks were superior, and the Grey Dorking was represented, and is, I should infer, a favourite barnyard fowl in Scotland.

The implement department was much larger than at any show heretofore so far north. The articles were in great measure precisely the same as were shown in very much greater number at the recent English show at Leicester. Fowler's traction engine and ploughing apparatus was exhibited by a Kincardine Company. The machinery was put in motion, but there was no opportunity of doing real work, nor any testing of implements in the field.

At these national shows no grains, fruits, &c., are exhibited; a want that has very long been felt has been partially met, both in England and Scotland, by holding an horticultural exhibition during the same time and adjoining the show yard of the agricultural show. The Royal Horticultural Society of Aberdeen accordingly held a very successful show of flowers and fruits in a capacious tent, and wooden shedding. I was not prepared to see so extensive and fine a display in the various branches of horticulture. The floral tent had a magnificent appearance, and the vegetables and fruits, considering the unfavorable character of the season, were really excellent. Late

strawberries were of large size and rich in quality, having a peculiarly pleasant acid flavour. The gooseberries were the finest I ever saw, and the other small fruits were of excellent quality. This part of Scotland is renowned for its gooseberries and strawberries, and yearly sends large quantities of plants to various parts of the world. The pine-apples, grapes, peaches, nectarines, and other hot-house fruits, were splendid; indicating in an unmistakable manner that the Scottish gardener, as well as farmer, has attained to an advanced position both at home and abroad. I have just learnt that the total receipts at the gates of the agricultural show were £1,576, and the amount of prizes offered £1,000.

The excessive heat which has for many weeks prevailed seems now somewhat abated. Showers have more or less fallen in various places in the United Kingdom, and their effects have doubtless been locally beneficial. It may still, however, be said that the drought continues, with no immediate prospect of a permanent change. Water universally is getting scarce, and in some localities it can be obtained only in the smallest quantity. In such situations cattle are suffering as much, if not more, on that account than from want of keep. Pastures being dried up, farmers have to give their cattle and sheep large quantities of grain, oil cake, and other artificial food; even, in some places, the dwarfed spring grain has been cut and devoted to that purpose. Considering all these disadvantageous circumstances, it is really surprising to find stock doing so well as is actually the case. The greatest suffering has been among young lambs, from the want of a sufficiency of milk; many ewes soon after lambing having gone nearly dry. I have been surprised to find in various parts of the country how well sheep have done where they could get anything in moderation to eat; and on the richer pastures, although apparently nearly burnt up, the animals have actually got fat. What is now wanting to save the stock is a succession of heavy showers, and the possibility is that pasturage will be abundant during the later portion of autumn and the earlier part of winter.

In the central and southern parts of England the harvest is fast drawing to a conclusion; and here in the northern parts of Scotland it has on the earlier soils commenced. This is almost unprecedented in the annals of British agriculture. Wheat is the only good crop that the British Islands will this year produce, and this remark will more or less apply to many portions of the European continent. The price of wheat is rapidly falling, but I do not, after all, anticipate very low terms for that indispensable article. Spring grain generally must be very deficient, and will command high rates. In this part of the kingdom oats and barley are extensively cultivated, and where got in early, in good condition, on the richer and cooler class of soils, these crops are very fair, but in general they are miserably bad. What with the inferior grain crops and the great reduction in the price of all kinds of stock, this must prove a very losing year to the British farmer. I am glad to hear such good accounts of the crops in Canada, and our farmers will find on this side a brisk market for their surplus spring grain. Of the potato disease I hear not a word, the drought seems to have annihilated it, at least for the present, but the crop, as also that of turnips, mangels, &c., must be very light. I shall return to the Lothians through the Western Highlands, having received several invitations from hill farmers, whose systems of management will be new to me, and no doubt suggestive and interesting. I have as yet been uniformly received in a friendly manner, and find the people generally well disposed to hear information on matters relating to Canada. Of the anti-colonial feeling, I have as yet seen scarcely a trace of the existence.

GEO. BUCKLAND.

Aberdeen, August 3rd, 1868.

The Crops in the United States.

THE Associated Press of the United States have received reports from almost all parts of that country regarding the harvest. We give them below condensed:—

WHEAT—This crop is larger than last year in West Virginia, Indiana, Ohio, Missouri, Kansas, Utah, Colorado, Montana, Illinois, Iowa, Wisconsin, Minnesota, New York, Pennsylvania, New Jersey, Maine, Massachussetts, Connecticut, and New Hampshire, and the quality is regarded as excellent. In Georgia, South Carolina, Alabama and Texas, the reports are not so good, the yield being indifferent. In Louisiana, Arkansas, Kentucky, Mississippi, Maryland, South Western Virginia, Central Tennessee, North Carolina, Delaware, and Vermont, the crop has been an average one.

CORN—From all sections of the country this crop is very large, and quality remarkably good. The yield this year promises to be fully one-third more than last. This is especially true of the Southern States.

OATS—In Kentucky, Tennessee, West Virginia, Indiana, Missouri, Kansas, Ohio, Nebraska, Iowa, Wisconsin, Minnesota, Vermont, New York, and Illinois, (especially in the latter States), the yield is large, while in Louisiana, Mississippi, Georgia, Florida, South Carolina, and the other Southern States, it will not be more than an average. Late rains have injured the crops in New Jersey, Pennsylvania, Delaware, Maryland, and Maine, and the yield in these States will be less than usual.

BARLEY—Will be an average crop.

HAY—More than the average crop will be realized. In Pennsylvania, New York, Indiana, Ohio, New Jersey, Delaware, and Maryland, the yield is very large and of excellent quality.

The potato crop is generally large and good. A heavy mildew and insects have killed hops in Pennsylvania.

The Drought in England.

THE long continued dry weather in England is causing the export from America of an article which we rather think for the first time crosses the Atlantic in any noticeable quantity. Five steamers—the "Colorado," "City of London," "City of New York," "Erin," and "Louisiana,"—have all within a week left New York, freighted with hay for the British market; and all the steamers for a fortnight ahead are bespoken for the same cargo to their utmost capacity. If rains do not come speedily in Britain this must go on for the season. Already hay is commanding very high prices in the interior of England. It is calculated that the sheep alone require as much as 54,000 tons a day; and they are in many districts being fed as much as in the midst of a snow storm in the depth of winter. To what extent this want may be supplied from the continent of Europe of course cannot as yet be determined; but the fact of hay being already exported from America, and at such a price as amply to repay the trouble and expense, gives us a new idea of the extent and severity of the drought. It is not too late yet, if rain in abundance should come speedily, to have the pastures revived, but up to the 6th of August, at any rate, there seems to have been no change, such as all must be anxiously looking for.

Growth of an Australian Colony

ALTHOUGH the first rush to the new Australian colony of Queensland, which was erected as an independent settlement on the 10th of December, 1859, met with some check in 1866, and the country seems also to have been subjected to drawbacks from the fact that the settlers are such as usually throng to a new district—about five per cent. of the entire population being annually taken into custody—the progress of the colony has been remarkable. According to a despatch from the Governor, Sir G. F. Browen, just published, the European population since the date of its establishment has increased from less than 25,000 to nearly 100,000; while the revenue and the trade, including exports and imports, have been almost trebled. The other chief elements of prosperity have advanced in a nearly equal proportion. During the same seven years cotton and sugar have been added to the list of staple products; a line of new ports has been opened along the eastern seaboard from Keppel Bay to Cape Cork, a distance of 1,000 miles; and settlements have been formed around the head of the Gulf of Carpentaria on the northern coast of the Australian continent and a distance of more than 1,500 miles from the seat of government at Bresbane. Moreover, during the same period, pastoral occupation has spread over the greater portion of the interior of Queensland; that is, over an additional area at least four times larger than the area of the United Kingdom. In 1859 the pioneer settlers had scarcely advanced beyond the Darling Downs to the west, or beyond Buckhampton to the north. Now there are stations more than 700 miles to the north and north-west of Buckhampton.

☞ A new variety of corn, the result of selecting seed and of high culture, has originated in Minnesota. The yield last year was as high as 127 bushels to the acre.

American State Fairs.

THE following is a list of the principal American State Fairs, with the days on which they will respectively be held.

New England	New Haven, Ct	Sept. 1— 5
Kentucky	Louisville	Sept. 8—12
Vermont	Burlington	Sept. 8—11
Michigan	Detroit	Sept. 15—18
New Hampshire	Manchester	Sept. 15—18
Ohio	Toledo	Sept. 21—25
Illinois	Quincy	Sept. 21—26
Iowa	Clinton and Lyons	Sept. 29—Oct. 2
Indiana	Indianapolis	Sept. 28—Oct. 3
Wisconsin	Madison	Sept. 29—Oct. 2
Minnesota	Minneapolis	Sept. 29—Oct. 2
Pennsylvania	Harrisburg	Sept. 29—Oct. 2
New York	Rochester	Sept. 29—Oct. 2
Maine	Portland	Sept. 23—Oct. 2
New Jersey	Waverley	Sept. 29—Oct. 2
Colorado	Denver City	Sept. 29—Oct. 3
Kansas	Leavenworth	Sept. 29—Oct. 2
Missouri	St. Louis	Oct. 5—10.

HORTICULTURAL FAIRS.

Am. W. G. Association.	Cincinnati	Sept. 22—
N. Y. Grape Growers.	Canandaigua	Oct. 7—8

ENGLISH CROPS—The *Agricultural Gazette* furnishes the following tabular statement of over two hundred returns of this year's crops from various localities in England, which show wheat and peas to have been considerably over the average of previous years, while other crops have been mostly below the average:

	Total.				Percentage.		
	Average.	Under Average.	Over Average.	Total	Average.	Under Average.	Over Average.
Wheat	67	13	126	206	32	7	61
Barley	54	140	5	199	27	70	3
Oats	37	138	2	177	19	80	1
Peas	55	8	52	145	58	6	36
Beans	22	137	0	159	17	83	0
Root crops	9	102	0	95	9	95	0
Potatoes	93	101	4	198	32	46	2
Hay	22	180	2	204	12	88	0

☞ A letter from Denmark describes the heat in that country as most intense. The wheat and rye are good, but all other crops are failures. The prospects of the cattle trade are indifferent. *Farmer* (Scottish).

☞ A large trade in the importation of wheat from California is going on at New York. Eighty-nine vessels are said to be on their way from San Francisco to that city at present, loaded with cargoes of wheat aggregating about five millions of bushels.

FALL SHOWS.—The annual exhibition of Addington Agricultural Society, will be held at Newburgh, on Thursday, the 15th day of October next. The township of Camden Show will be held on Saturday, the 10th day of October next, at Centreville.

THE WOOL MANUFACTURERS' CONVENTION met in Chicago, on the 5th of August, under very favorable auspices. The display of woollen goods, including cloth, jeans, shawls, blankets, flannels, yarns, knit goods, &c., was very good indeed. The wool-growers, with few exceptions, seem to have given this exposition the cold shoulder. The states of Illinois, Indiana, Iowa, Wisconsin, Michigan, Ohio, Kentucky, New York, Rhode Island, Massachussetts, Pennsylvania and Connecticut were represented. Gov. Oglesby, of Illinois; Mayor Rice, of Chicago; Hon. J. B. Grinnell, and other distinguished gentlemen addressed the Convention.

THE PARIS EXPOSITION.—The honours awarded to exhibitors from this Province, at the International Exhibition last year in Paris, have been received by the Secretary of the Provincial Agricultural Association and distributed to their owners. The diplomas accompanying the medals are now gracing the shop windows in more than one place through the city, the possessors evidently attaching some value to their mark of pre-eminence. Recently we were shown a bronze medal awarded to Mr. Francis Barclay of Innisfil, for a sample of wheat, the same wheat which took the Canada Company's Prize here in 1866. The ornament is naturally very much prized by its owner, and although not the highest awarded, still reminds us that Canada can stand comparison with wealthier communities in the staple product.

Hybridizing and Crossing the Grape.

A REPORT FOR THE DIRECTORS OF THE FRUIT GROWERS' ASSOCIATION OF CANADA.

GENTLEMEN.—There is no practice more fascinating and instructive in the whole range of horticultural experience, than that of producing new varieties of fruits by the art of hybridizing. It brings the operator into very intimate relation with those laws which govern the production of new *being*. He learns that nature, in her great laboratory, contains unlimited material for the developement of man's skill; it makes him comprehend that beautiful liturgical expression,—"As it was in the beginning, is now, and ever shall be." He sees the strongest analogy between the vegetable and animal kingdoms; he acknowledges, with a subdued spirit, the harmonious relation of forces; and with a thoughtful, inward, voluntary praise, worships the AUTHOR.

That the mode of operation may be clearly understood, he should examine the flowers of the grape at different stages of development with the microscope. He will see that the whole cluster contains many distinct flowers, each one of which is capable of self-fertilization, and has a cap composed of five petals cohering, which is raised up and thrown off by five expanding stamens contained within the cap; each stamen holds a small cup, called an anther, at its summit, containing the pollen, or male essence, beautifully surrounding the stigma, the terminal point of the pistil or female organ—the crown of the fruit in embryo; this apex contains a viscid substance to which the pollen adheres when brought in contact by the air or insects; when the grains of pollen lodge here they cannot get away, they penetrate and are absorbed by the stigma, and pass down through the pistil to the ovules or undeveloped seed. These beautiful organs, so suitably adapted to an intelligent end, command our attention. The process of fertilization goes on without our assistance; and it is a startling fact that in a short period the compass of this earth would not be sufficient to contain the reproductive force of a single species, were there favorable conditions to sustain the life of every germ.

When we wish to produce a new variety, by crossing, we place the pollen of one variety upon the stigma of another. Let me proceed to explain intelligibly how the whole process is performed. The operator must secure a magnifying glass, efficiently powerful to see each separate grain of pollen; a delicate pair of pincers and scissors; a camel's hair pencil; a very small clean and dry vial, with a large neck; a sheet of white, smooth, glazed paper; a thin paper bag to enclose the cluster when finished; and a label to mark the parentage. He must then on a clear dry day take the glazed paper, and with it surround as many clusters as required of any desired kind, in full flower, when scattering their pollens bounteously; snap the paper several times with the finger, it will then contain the pollen; open it carefully, gather the powder with the pencil, twirl it in the vial, and thus proceed until he have sufficient; then cork tight and put in a dark, cool place, labeled for future use. It is necessary that the flowers to be fertilized should be the last to bloom; when these are ready, which will be indicated by some of the caps being thrown off, then, with the scissors, remove two-thirds of the flowers in the cluster, with those already opened, and from the balance, with the delicate pincers, gently remove the caps; this any one will be able to do by a little skilful practice without injury to the stigma. Cut away the stamens, with their anthers, and with the magnifier observe the viscid surface of the stigma; should there be one with a grain of pollen adhering, cut it off; if not, take the hair pencil, introduce it in the vial, great quantities of pollen will adhere, place it upon the viscid stigma of each. Take the glass again and look; if the points are covered with pollen the work is good; inclose the cluster in the paper bag, tie the mouth and label it with the parent's names; this should all be done in the morning, after the dew is gone; let the bag remain till the surrounding flowers have set their fruit and commenced growing—so as to avoid insects and stray pollen. This practice with the grape will enable the hybridizer to operate with other flowers and fruits; but he must always bear in mind that the success of this undertaking depends much upon the proper selection of the most suitable parents for a desired result; this will always be open to the judgment of each operator; and also that beside the variations of seasons, the different modes of cultivation will perpetually produce varied results. For these reasons I would recommend all those who are trying their hands in this direction, to continue their operations from season to season. It will be found also, in the course of practice, that the difference in sexual conformation prevents certain kinds from hybridizing; but I have no doubt that this disparity will be overcome by first breaking the habit of these by more mutual crosses.

Mr. William Saunders, of London, Ontario, has, with much skill and labour, produced this season the following results in hybridizing, and has kindly permitted me to lay them before you.

FEMALE OR BEARING VINE.

Clinton—with Syrian pollen		Set	18	Berries.
"	" Muscat Hamburgh, 2 bunches	"	0	"
"	" 1 failed, the other set.	"	1	"
"	" Buckland Sweetwater	"	30	"
"	" Muscat D'Avni	"	8	"
"	" Black Hamburgh	"	5	"
"	" Grizzly Forulgnan—failed	"	0	"
"	" Black do do	"	0	"
"	" Chasselas Musque	"	5	"
"	" Royal Muscadine	"	22	"
"	" Victoria Hamburgh	"	18	"
"	" Rose Chasselas	"	13	"
	Total		121	

OF GOOSEBERRIES

Houghton's Seedling with	Warrington pollen	Set	8	Berries.
"	Roaring Lion	"	2	"
"	White Smith	"	1	"
"	Brown Girl	"	5	"
"	Ashton's Seedling	"	2	"
"	Crown Bob—failed.			
	Total		16	

Eight or ten flowers were operated on in each case, excepting Crown Bob, which was used on five only. He also operated on six or seven flowers of the Philadelphia Raspberry, with the Brinckles Orange; such were his results. Mine were as follows: I was unable to fertilize the Delaware with either the Black or Muscat Hamburghs, while one took readily with the Diana.

MALES.	FEMALES.	CLUSTERS	SET	BERRIES.
Black Hamburgh	Delaware	2	11	0
Muscat do.	Do.	1	"	0
Chasselas do Fontainebleau	Do.	1	"	0
Rose Chasselas	Do.	1	"	1
Do.	Diana	1	"	13
Chasselas do Fontainebleau	Do.	1	"	24
Do. Do.	Rebecca	1	"	0
Do. Do.	Isabella	1	"	0
Muscat Hamburgh	Diana	1	"	26
Bowood Muscat	Rogers' No. 4	1	"	27
Delaware	Do. Do.	1	"	17
	Total			114
Mr. Saunders' total				121—235

So slow and tedious is the process, it will be observed that only a limited amount of labour can be performed by one person during the time of flowering. Mr. Saunders exceeds me by seven berries. Now to test the quality of only a portion of these which may survive the vicissitudes of germination and other mishaps, it will take from six to eight years. I know no reason why the Government should not protect, by patent, the production of new fruits; they are in point of fact quite as worthy as any other production of science and skill.

Yours respectfully,

WM. H. MILLS.

Hamilton, 24th August 1868.

Garden Seeds.

FARMERS are sometimes apt to be dependent on the salesman for their yearly supply of garden seed; whereas a little forethought and attention at the proper season, would not only save them annually the sums expended in purchasing seed from the store, but would ensure the required article of the proper age and quality, and would also give better opportunity of making improvements in the different varieties. To do this, however, care and judgment are necessary. It will not answer to adopt the principle of selling aside the last-ripe, or the smallest products of either garden or field, for the next year's sowing. Potatoes too small for use are unfit for planting, and late ripened seeds of any kind will probably yield a late maturing plant the next season. Let the farmer make his selection from known varieties, the qualities of which he has tested. Let him set aside early in the season a single plant or two of promising appearance, for the special object of growing to seed, and bestow on these plants special attention. He will thus secure germs that will probably yield more luxuriant growth and better quality in the succeeding product. He will certainly save himself the disappointment of obtaining old seeds instead of new, or a different variety from that which he expected. Having secured his seed, he must of course be careful to place it in security from damp or the depredations of mice, and must not omit to label each parcel with the correct name, and the date of the contents. These are simple matters, scarce calling for notice, yet in how many instances does failure come from inattention to them. We know not a few who make a point of saving seed in the fall, and yet have invariably to purchase their supply in spring. Mice, or damp, or want of care in labelling, or some other equally trifling cause, have defeated all their pains.

Gathering Fruit.

THE appearance and the value of fruit depend very much upon when and how it is gathered. Strawberries, if picked carefully, with half or quarter of an inch of stem attached to each berry, and laid carefully in the basket, will carry better, and sell for a greater price, than when pulled hap-hazard, some with hulls and stems on, and some with them off. Again, if they are gathered when they are perfectly dry, they will keep longer and retain a better flavour than if gathered while wet. A little water not only hastens decay, but it rapidly destroys the flavour of many delicate soft varieties. After being gathered, they should never be allowed to stand out exposed to the sun, as with many varieties, it takes but a little while of exposure to a hot, clear sun, to destroy their brightness of color.

Peaches should be left on the tree until they are fully ripe, and then gathered carefully with thumb and finger, and at once laid in the basket or box in which they are to be marketed. If the bloom is rubbed off the peach by rough handling, its beauty of appearance is injured, and it will decay much sooner than if untouched. Formerly it was supposed that the peach must be gathered before being fully ripe, in order to ship it any distance, but practical experience has proved that ripe fruit, not quite soft, will carry quite as well as unripe, and command a much better price.

Pears and apples should never be picked from the tree by breaking the stems. Unless the stem will separate freely from the tree, the fruit is not ripe; it will neither eat nor cook good, and is only fit for those who want a touch of the cholera morbus. Apples, as gathered, may be sent directly to market, but nearly every variety of pear is improved in appearance and quality by keeping in close dark drawers, wrapped in flannel or soft paper, or packed in bran for a few days.

For profit, and in order to obtain the highest price, all fruit pays to be assorted into two or more grades. A few scattering large berries, apples, or pears in a quart or bushel, do not assist in advancing the price; but if carefully packed by themselves will bring the highest price, and often induce the dealer to buy the small fruit in order to get the large.—*Horticulturist.*

The Vineyards of the Islands of Lake Erie.

THE Kelley's Island correspondent of the Ann Arbor *Courier* says:—"The whole secret of grape culture here is all explained in the peculiar mildness of the climate. The large body of water surrounding the islands becomes so heated during the summer that the frosts do not come until December, not even severe enough to injure the tomato vines. The cost of raising grapes is moderate; one man can easily cultivate five acres—one horse, a plough cultivator, and a hoe is all that is needed. The grape roots are placed in rows, six by eight feet apart, and the vines are held by three rows of wires, strung on posts. In the spring, all the wood of last year's bearing is cut away, and from two to three vines of last year's growth are allowed to grow, being cut back from three to four feet from the ground. To secure a good crop, the vineyard must be well ploughed, cultivated and hoed, keeping it free from all weeds and grass. The price of grape land is $300 per acre, and when a vineyard is in full bearing, after a three years' growth, it is worth $1,000 an acre. The average net profit from one acre of grapes is $300, but as high as eight tons to the acre has been raised—which, at the low figure eight cents a pound, brings the snug little sum of $1,280. I have visited the vineyards on Middle Bass Island, and I find a great difference in the cultivation of the grape, some neglecting and others taking the utmost pains to keep them clean, in order to secure a good crop. W. W. Wicker and Capt. Atwood have the best prospect of a good crop of any I have seen—although not much over one-half a crop is expected, owing to the rot and mildew. The Concord, Delaware, and Catawba, are the best grapes raised here. One thousand acres of grapes are now in training, mostly on North Bass, Middle Bass, or Put-in-Bay and Kelley's Island, which together contain about 6,000 acres. Immense quantities of pure native wines are also made on these islands; the amount last year was 100,000 gallons. The Catawba wine is of an excellent quality. At the Paris Exposition, where all the noted wines of Europe were on exhibition, the American wine took the premium. It is a singular fact in this wine-making, that the wine always undergoes two fermentations; one when pressed from the grape, and the other the next spring, when the leaf and blossom of the vine appear. Large wine-cellars, capable of holding from 8,000 to 80,000 gallons, are built in the solid rock, arched over with stone or brick, in which the wine is stored until fit for market."

Eververgreens in August

THE latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened, so as to permit of but very little evaporation—and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cold autumn winds begin. The chief difficulty is, that the soil is usually very dry, which prevents much speed with the operation; and the weather being usually very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well, therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue—which in September and October is very likely—one good watering should be given, sufficient to soak wet through the soil and about the roots. A basin should be made to keep the water from running away from the spot, and to assist its soaking in. After being well watered, the loose soil should be drawn in lightly over the watered soil, which will then aid in preventing the water from drying out soon again.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till the next summer. Last spring, and in the summer, when a strong growth required it, the hedge has been severley pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases. Now that, in turn, has come under the shears, so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with evergreen hedges, they ought to have a growth at the base of at least four feet in diameter.—*Gardener's Monthly.*

☞ A farmer in Oneida, N.Y., raised seven thousand quarts of strawberries on a single acre this year.

The Apiary.

Cause of Bees Robbing.

THE principal cause of bees robbing is want of forage. Bees will seldom, if ever, rob when they can find plenty of flowers to work upon; but when flowers cannot be found, and the weather permits them to fly, their great anxiety to labor causes them to seek for honey even in the neighbouring hives. Hence, in the spring and fall, or before the honey season commences, and after it closes, bees are much inclined to rob each other, and sometimes, for want of a little attention, cause the apiarian much trouble and loss. It frequently happens that a stock of bees, becoming overpowered by robbers, join in with them and assist in carrying away all their stores, and the bee-keeper very unexpectedly finds his hive minus bees and honey.

As a rule, however; stocks that are attacked by robbers are defective in some way; that is, if a stock is being robbed in "right good earnest" we may conclude that it is queenless or has a drone-laying queen, or from some other cause is very weak. Robbers may, and not unfrequently do, attack strong stocks; in such instances they are generally handled rather roughly, and soon leave.

Every bee-keeper will have noticed in the fall, after the honey harvest is over, on the lighting boards of his hives, or some of them, a single bee surrounded by others. The bee surrounded is a strange bee, or robber; they hold it a prisoner; some are biting its legs, some its wings, while another is ready to take what honey it has—for by the continual biting of the bees it is forced to give it up. If the stock is queenless, or otherwise weak, these robbers increase until they will come and go in a perfect swarm, and sometimes in a few hours carry away all the honey in a hive.

To prevent robbing, the entrances to all hives should be contracted, as soon as the honey harvest ceases, to a very small opening, especially if stocks are weak. When it is discovered that a stock is being robbed, and contracting the entrance does not stop the robbing, it must be removed to a dark cellar or out-house for a day or two,—then bring it out and examine it, and ascertain the cause, and apply the remedy. If queenless, or possessing only a drone-laying queen, give them another, or join them to another stock that has a queen. If not queenless, but very weak in bees, exchange places with some strong stock. If it is discovered that one stock in the apiary is robbing another, put the stock of the one that is being robbed in the place of the one that is robbing; in other words, exchange places with the two socks, and the robbing will generally cease. This should not be done, however, unless it is clear that the robbers are getting the advantage. But the best preventive of all is to keep strong stocks, and be sure they are not queenless.

Swarming Extraordinary. — Queenless Stocks.

To the Editor of THE CANADA FARMER:

SIR,—On the fourth day of this month, I took an artificial swarm from one of my hives of bees, and cut out all queen cells but one: On the twenty-third that same hive cast a natural swarm, and on examination I found that same queen cell open at the lower end, but no other in the hive in any stage, and no eggs. I returned the swarm to the hive, and they are doing well.

On the twenty-third of this month, one of my hives swarmed, and the bees returned to the hive without clustering. I examined and cut out all queen cells but two. Soon after I found a queen on the ground, with one wing gone and a part of the other. I placed her on the alighting board, but the bees attacked and killed her. She might have come from another hive, which swarmed and returned the same day. Yesterday, this hive from which I had cut the queen cells on the twenty-third swarmed again, and the swarm clustered in two separate clusters, some distance apart. On examining the hive, I found the two queen cells open at the lower end, and no other in the hive, nor any young brood or eggs. I returned both clusters to the hive, and this morning found one, and only one, queen thrown out. Both stocks were in the "Thomas" hive.

I would like Mr. Thomas or anyone else to explain these phenomena. It seems to me that we have here a way of accounting for queenlessness which I have not seen mentioned by any writer on the subject.

THOS. C. HILL.

NOTE BY ED. C. F.—A swarm issuing under the circumstances as related in the first instance is not a common occurence; yet sometimes it is the case, and may be accounted for in this way. The excitement caused by the queen leaving the hive on her bridal tour, causes the bees to rush out after her, and cluster as in other cases.

The second instance related is a more common occurence. It not unfrequently happens that all the queens in the hive hatch about the same time, say during a night; the result is, the next day, when the bees swarm, all the queens leave the hive, and there being no eggs, the stock is queenless and unable to raise another.

Swarms issuing under similar circumstances have been known to contain four and five queens. Sometimes the bees will all cluster together, and sometimes separately, as in the instance related by Mr Hill. When returned to the hive, all the queens will be destroyed, except one, as in this case. The queen found, probably issued from the stock out of which Mr. Hill cut the queen cells, or it may have issued from some other, as suggested by Mr. Hill.

More stocks become queenless from all the queens swarming out than is generally supposed.

☞ An Ohio exchange says something is the matter with the bees this summer. They refuse to send out swarms, or make any honey.

BEES EARLY SWARMING.—Most of our writers on the honey bee say look out for swarms from nine a. m. until four p. m., and being an amateur in bee-keeping, I was surprised on Sunday morning, July 5th, at *a quarter past six, a.m.*, to see a fine swarm issue from one of my hives, and another swarm from another hive at *half-past seven*. I think it would be advisable for your bee-keeping readers to keep a look-out next season a little earlier than usual in the morning, and perhaps save some swarms of bees by so doing.

WM. M. H

Township of Kingston, Aug. 6, 1868.

TREATING BEES WITH COLD WATER.—Bees in swarming have been known to alight upon persons and animals, stinging them severely, and in some instances causing death. The *American Bee Journal*, in referring to an instance of the kind, where a swarm of bees recently settled upon the head of a horse standing in front of a church, and the owner, who went to its assistance, was stung senseless, says that all the difficulty could have been obviated by the use of cold water.

In such cases the *Journal* advises a prompt application of a few gallons of cold water sprinkled from a common watering pot directly on the clustering bees. It remarks that "a little knowlege, presence of mind and calmness would have been serviceable here; for nothing is more apt to rouse the ill temper of bees than to come in contact with a sweaty horse; and a horse is a most helpless animal when attacked by bees."

During the extreme hot weather of July we had several swarms come off that were extremely irritable, and we treated them to a sprinkling of cold water, after which they became quiet, were easily handled, and were hived without the least trouble.

The Household.

Citron Preserve

SOME of our readers, obseves *The Farmer* (Scottish) may have felt a little puzzled, at hearing friends from Canada or the northern United States descant on the excellence of the citron preserves which they were in the practice of making when at home, and that, they will affirm, from veritable citrons grown by them in their own gardens there, and out of doors too. What! Citrons grown in the open air, where the winters are even much colder than in Britain! As well grow oranges also, for wherever citron trees will grow, orange trees will grow equally well, and often better. But citrons do not grow on trees, the transatlantic friend will reply, for they grow upon vines, like those of cucumbers or vegetable marrows. Here, then, there must be some mistake; and that there certainly is, which, however, is cleared up by a little further explanation, when it appears the fruit of the so-called citron is not the fruit of the true citron, *Citrus Medica*, from which the preserved citron peel of the shops is made, but that of the citron gourd, or citron water-melon, a variety of *Curcurbita Citrullus*, for the cultivation of which, and the preserving of its fruit, the following directions are given in Messrs. E. G. Henderson & Son's Seed List for the present season :—

"This is a truly valuable, and highly-interesting esculent fruit, and constitutes a true variety of the hard-fleshed water melon, which, though not edible in its raw state, is now approved and strongly recommended for its valuable adaptation in making a very delicious preserve. It requires the same treatment by seed as the common ridge cucumber. The following directions are given as a successful method of preparing the preserve :—Pare the fruit, and let out the seeds, taking out the soft pulp for after use, and weigh the remainder, cutting it into convenient lengths and thicknesses. To every 1½ lb. of the firm fruit, apportion a lemon and 1 lb. of the finest double refined loaf sugar, with 1½ pints of spring water; then pare the lemons thin into a basin, and squeeze the juice to the rind, and let it stand to get out the flavor. Put the fruit and most of the water into the preserving pan, and stir it till it is soft and transparent; which will be from three to four or even five hours, adding the remainder of the water, if needed, from time to time, until the opacity of the preserve gives place to transparency in the flesh. When boiled soft, add the sugar and skim it; and when the syrup is well formed, strain the lemon juice to it, and by the time this is well incorporated, the preserve will be done. It ought to be of a transparent clearness, and of a fine apple-green colour, and citrontaste. If duly prepared, it forms a most valuable addition and equivalent as a sweetmeat, and a delightful change from the rich aroma of the raspberry, or the pleasant acidity of the marmalade; and if boiled somewhat longer than the directions given, it assumes a guava-like flavor which tastes excellent; the soft pulp will also form a good preserve with the same preparation as above. If used before the fruit becomes over-ripe the pulp is tolerably solid."

On submitting the above recipe to a lady who had frequently made citron preserve in Canada, we were informed that it was somewhat different from the mode she had practised, which was as follows, the fruit being used before becoming over-ripe, or prior to the inner portion becoming pulpy or soft :—Quarter the fruit, then pare and cut in slices, each rather more than one inch in thickness, pick out the seeds, cut in pieces about one inch square; boil slowly for several hours in water, till the pieces are quite transparent, strain and throw away the water, make a syrup in the usual way, using 1 lb. of crushed lump sugar to 1 lb. of fruit, adding half a lemon, sliced, with the rind on, and a quarter of an ounce of ginger for every 1 lb. of sugar. Put the pieces into the syrup, and boil for twenty minutes, then dish in small jelly pots, as it is apt to candy if long open.

CLARK'S EXCELSIOR WASHING COMPOSITION.—In our last issue we noticed this newly patented article. We spoke of it then only on the testimony of others who had used and found it efficient and economical. We have since procured the requisite instructions from Mr. Clark, and had a trial made at home. We are now authorised to say that the experiment was perfectly satisfactory; that the scrubbing board was dispensed with, a slight amount of hand-rubbing being all the labor of the kind required; that the clothes were thoroughly cleansed, leaving them, when dry, of an excellent colour; and that much time as well as labor was saved in the operation. Less soap also was required than in the usual method; so that, in addition to the foregoing advantages, a saving is effected in expense. Domestics are not usually over ready to adopt any "new-fangled notions" and modes of proceeding in their own special department; but this invention has given such satisfaction, that in our family Mr. Clark's patent will in future be used, and we have much pleasure in adding our favourable testimony to the many commendations which his improved process has already received.

TO REMOVE THE SKIN FROM PEACHES.—Every one knows that there is a great loss of pulp in pearing peaches with a knife; to obviate which an exchange suggests the following method of treating them: Make lye as strong as possible of wood ashes and soft water. Fill a kettle with the lye, and when boiling rapidly, drop in twelve or eighteen peaches and take out again almost immediately, and immerse them in a pail of cold water. Take one in your hand, and you perceive that the rind will slip off entirely, leaving a round beautiful yellow ball; threw it immediately into another pail of pure water, and so proceed till all are done. This process will not injure the flavour of the finest peach, and once tried, the old-fashioned way of peeling with a knife will not be again adopted. If the lye is not strong enough, put into the kettle two dipperfuls of clean wood ashes. This is an excellent way to rid small onions of their jackets preparatory to pickling them.

Advertisements.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY, OSCILLATING MULLEY SAWS, TURBINE WATER WHEELS, MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-1f

A SPLENDID LOT OF

LEICESTER AND COTSWOLD RAMS

FOR SALE. Shearlings and Two-year olds of first-class quality and purest blood; heavy weights and heavy fleeces.

JOHN SNELL,
EDMONTON.

v5-17-1t

DURHAM BULL CALVES,

FROM FOUR TO TEN MONTHS OLD, sired by the famous prize Bulls "Baron Solway" and "Duke of Bourbon," for sale at **REASONABLE PRICES.** Catalogues with full pedigrees sent on application.

JOHN SNELL,
EDMONTON.

v5-17-1t

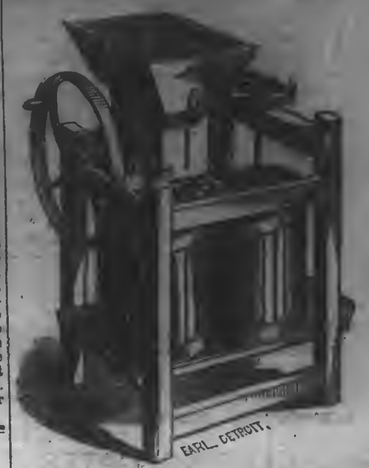
DIEHL WHEAT.

THE Subscriber has for sale a quantity of DIEHL WHEAT at $2 per Bushel.

LEWIS SPRINGER,
Hamilton, Ont.

v5-15-4t.*

NEW PATENT CIDER MILL.



H. Sells' Patent of 1866.

THIS MILL first CUTS and then CRUSHES the apples perfectly fine, making a saving of more than one-eighth of the cider over any other Mill. It NEVER CHOKES, owing to its novel discharge, and is very substantial. It carried off the first prize at the Provincial Fair held at Kingston, 1867, and also was awarded a diploma the same Fall at the N. Y. State Fair, held at Buffalo. Hundreds of these mill's are now in use in Canada and the United States, giving the best of satisfaction. We furnish this Mill and Press complete, with two Curbs, for $30, or Double Mill on the same principle for $35, (at our factory). Both are equally adapted to hand or other power.

Farmers, send in your orders early, stating your Port or Station, and Post Office address. All orders will receive prompt attention.

☞ Agents Wanted all over the Dominion.

Address: H. SELLS & Co.,
VIENNA,
Ont.

August, 1868. v5-17-1t.

AYRSHIRE BULL FOR SALE.

THE Subscriber will offer for sale at the approaching Provincial Exhibition, to be held in Montreal, **A PURE BRED AYRSHIRE BULL**, 17 months old, from his imported cow "EFFIE," by the County of Beauharnois Agricultural Society's imported Bull "Marquis."

J. M. BROWNING,
BEAUHARNOIS, P.Q

18th August, 1868. v5-17-2t.

THE FINEST STRAWBERRY

FOR AMATEUR CULTURE!—**NAPOLEON III.**, of LARGE SIZE, HIGHEST FLAVOR, GREAT PRODUCTIVENESS, AND EXTREME VIGOUR AND HARDINESS. We offer a splendid stock of young, thrifty plants of this valuable new French variety. Illustrated Descriptive Circular mailed to applicants.

☞ Price of Plants, (by mail, Postage paid,) $3.00 per doz.

EDW'D J. EVANS & Co.,
YORK, PENNA, U. S.

v5-15-4t.

Duncan's Improved Hay Elevator.

PATENTED April 25th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,
Port Dover, Ont.

v4-20-1f

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East, Medical Hall, Toronto.

v4-14-1f

WE are turning out from five to ten Threshing Machines per day, and can fill orders PROMPTLY. Our machines are not equalled in Canada, nor excelled in the United States. We now furnish the Burwick or Abel Gear without extra charge, and hereby guarantee those purchasing it from us against all loss or damages for infringement of patent claimed for it by Mr. John Abel. Address

F. W. GLEN,
EXECUTOR, OSHAWA, ONT.

August 28, 1868. (5-17-tf.)

LEWIS' INCLINE
OR
SELF-CLOSING GATES.

THESE GATES are cheap and easy of construction, and are not liable to get out of order. Being self-closing, they are especially adapted for dangerous places, stock pastures, or wherever it is necessary to keep gates closed.

☞ For particulars and Rights apply to

RICHARD LEWIS,
MELBOURNE,
v5-17-1t* Provincial of Quebec.

FRUIT AND ORNAMENTAL TREES
FOR FALL OF 1868.

WE have the pleasure of announcing that we are prepared for the Fall Trade with an unusually large and well grown stock, embracing

Standard and Dwarf Fruit Trees.

Grape Vines, new and old sorts, strong open ground plants.
Currants, Raspberries, Blackberries, and all the small fruits.

ORNAMENTAL TREES AND SHRUBS,

Roses and Flowering Plants of every description.

Nurserymen, Dealers, and others, purchasing largely, will be dealt with liberally, and all orders, however small, will receive prompt and careful attention. Parties interested will do well to consult the following Catalogues, which are just issued, and will be sent pre-paid on the receipt of 10 cents. each, for Nos. 1 and 2, and 5c. for No. 3.

☞ No. 1, Descriptive and Illustrated Catalogue of Fruits. No. 2, Descriptive and Illustrated Catalogue of Ornamental Trees, &c. No. 3, Descriptive Green House Plants. No. 4, Wholesale Catalogue, FREE.

ELWANGER & BARRY,
v5-16-4t. MOUNT HOPE NURSERIES, ROCHESTER, N. Y.

THE BEST SHEEP MARK YET INVENTED.

It is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr.,
Sarnia, Ont.

☞ N. B.—AGENTS WANTED. v5-13-tf-c,o.l.

STERLING ALGUIRE'S
MILK AGITATOR,
PATENTED APRIL 16, 1868.

STERLING ALGUIRE PATENTEE,
FARMERSVILLE, ONT.

☞ For particulars address

J. B. HARRIS, ASSIGNEE,
Belleville, Ont.

The attention of dairymen is respectfully called to the following testimony from one of the best factories in Oxford County:

NORWICH, ONT., Aug. 28, 1868.

J. B. HARRIS,

DEAR SIR,—Your Agitator needs no recommendation, it will recommend itself, and every cheese manufacturer can become convinced by giving it a fair trial; for my part I would not have it taken out of my two vats for twice the price. No cream can possibly rise, and it cools the milk to the same temperature as the water with one-quarter inch stream of water.

v5-17-1t* Respectfully yours, H S LOSEE.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Aug. 28th, 1868.

THE flour and wheat markets during the past fortnight have been very dull. There has been little or nothing doing in produce of any kind except in Barley; that grain has been offering freely. The season has fairly begun, and large quantities have already changed hands.

FLOUR AND MEAL.

Flour—The market has been very dull; holders are asking $6.50 for No. 1 super., but can find no buyers at that price; there is little or no demand; extra has been in fair demand for small lots at from $7.25 to $7.50; superior is altogether nominal, there being no lots in the market.

Oatmeal—In good demand for small lots at from $7.50 to $8.75.

Cornmeal—Small trade doing at $5.

GRAIN.

Wheat—New wheat has not yet begun to come into market. There is very little old wheat offering. Spring wheat and midge-proof are nominally worth $1.35 to $1.40, and Fall $1.45; on the street market a few loads sold as follows:—Spring wheat $1.35; midge-proof $1.32 to $1.35.

Oats—The market is dull; holders are asking 50c. for car lots; on the street market 50c. to 62c. has been paid for a few loads lately.

Barley.—The past week has been an active one with Barley buyers; as much as 60,000 bushels has already been shipped from this port to Oswego since the season commenced; the daily receipts by teams are considerable, amounting to from 10,000 to 15,000 bushels per day, the receipts by cars have averaged 3,000 to 5,000 bushels per day during last week. Prices remain steady at from $1.05 to $1.06. There are only two or three buyers in the market, the majority of operators being afraid to "go in" at present prices. Every bushel offering is, however, eagerly bought up at the rates named. It is generally thought that prices are higher than the state of foreign markets warrant, and a decline is therefore looked for by not a few. We think it not unlikely that rather lower prices will soon rule, and advise Farmers to take advantage of the present rates and at once bring their crop into market.

Peas.—There has been nothing doing during the past week. Prices are altogether nominal. On the street market there is none offering. Loads from farmers would bring 95c.

PROVISIONS.

Pork.—There is no change in the market. The few lots in holders' hands are held firm at quotations, and the demand is good.

Bacon.—Trade very limited. We quote 11c. to 12c. for Cumberland and Canadian.

Butter.—The market has ruled firm at our figures for the past week. Shippers refuse to advance, as prices are supposed to be dangerously high. We quote really fine for city use, 20c. to 21c.; ordinary round lots taken by shippers, at 17c. to 19c.; rolls on the market, 23c. to 26c.

Eggs.—Freely supplied at 10c. to 11c. for fresh.

Cheese.—Scarce and wanted, at 11c. in lots.

THE CATTLE MARKET.

Beeves.—The market has been well supplied during the week. Some five or six car loads were purchased for the Montreal market. First-class cattle are still scarce and in demand; second and third-class cattle are in good supply.—We quote per 100 lbs. dressed weight:—1st class $6 50; 2nd, do. $5 50; 3rd, do. $4 50.

Sheep and Lambs.—The market has been well supplied. There have been large arrivals by rail, principally from Seaforth. We quote:—*Lambs*, 1st class, $3 each; 2nd, do. $2 to $2 25 each; 3rd do. $1 to $1 25, each. *Sheep*—1st class $4 to $4 50 each; 2nd, do. $3 to $3 50 each: 3rd do. $2 to $2 25 each.

Calves.—Veal being out of season very few are coming in; selling at from $4 to $6 each.

Hides and Skins—Hides, green, rough per lb., 5½c. to 6c.; do. green, inspected, 7½c.; do. cured and inspected, 7½c. to 8½c.; Calfskins, green, 10c; do. cured, 12c., do. dry, 18c. to 20c.; Lambskins, green, 50c.; Pelts 40c.

HAY AND STRAW.

Hay—There has been a large quantity offering, and the demand is brisk. Prices have ranged from $12 to $15 per ton.

Straw—Not much coming in. Selling at from $8 to $14.

London Markets, Aug. 25.—The attendance and amount of business transacted on the Market Square to-day was perfectly satisfactory. The grain receipts were large, quickly taken up at fair prices, and wheat, both fall and spring, remained steady throughout. Barley and peas were in good demand; competition for peas, however, towards the close, was less keen, barley keeping unusually stiff. Other seasonable products were well represented and met a fair demand. Butter is much inquired after, and from recent appearances will rule high this winter. For other articles see quotations; red fall wheat, per bushel, $1 25 to $1 27; old spring wheat, $1 25 to $1 30; new spring, do. $1 20 to $1 25; barley, 92c. to 96c.; peas, 83c. to 86c.; oats, 35c. to 37c.; corn, 80c. to 85c.; buckwheat 64c. to 70c.

Galt Markets.—Our market is unusually crowded to-day. Fall wheat quoted at $1.25 to $1.30; seed fall wheat $1.30 to $1.55; spring wheat, $1.20 to $1 25; potatoes $1.40 to $1.50; tomatoes $1.50 to $2.00; butter 17c. to 19c.; eggs 10c. to 12½c.

Hamilton Markets, Aug. 25.—White wheat per bushel $1.25; do. red winter, $1 23; do. spring $1,25; barley, 95c. to $1; peas 90c. to 95c; oats, 43c.

Milwaukee Markets.—Aug. 26, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 44,000 bushels; shipments, 7,000; No. 1 wheat, firm at $1 75; No. 2 wheat, at $1 64. Flour quiet and unchanged. Pork firm. Freights at 15c.

Chicago Markets, Aug. 26, noon.—William Young & Co.'s report.—Wheat—Receipts, 106,000 bushels; shipments, 26,000 bushels. No. 2 wheat active at $1 66. Corn at $1 01½; receipts 152,000 bushels; shipments, 182,000 bushels. Pork firm and unchanged.

Contents of this Number.

	PAGE
THE MONTH:	257
THE FIELD:	
Irrigation	258
Lewis' Self-closing Gate, (with cut)	258
Scaled Wheat	258
Salt—Phosphoric Acid in Ashes	258
Thin Sowing—Have you tried it?	259
Fall Ploughing	259
Treatment of Clay Land	259
When to Sell Grain	259
"Ringleader" Peas	259
Measuring Grain in the Bin	259
CANADIAN NATURAL HISTORY:	
Canadian Martens (with illustration)	260
Skinning Quadrupeds	260
Hints for the Management of Gold Fish	261
English Sparrows	261
STOCK DEPARTMENT.	
An American's Account of a Canada Stock Farm	261
Valuable Imported Stock	262
THE DAIRY:	
Milking Cows before Calving—Rennets (with cuts)—Spots on Cheese—The Last Milk from the Udder	262
ENTOMOLOGY:	
Entomological Queries—The Red-Humped Apple-tree Caterpillar (with cuts)—The Squash Bug	263
CORRESPONDENCE:	
Wild Oats—Huron Crops—Stamp Machine Wanted—Refuse from Flax Mills—Seed Wheat—Decay in the Crotch—Barren Blooming—Queries	264
EDITORIAL:	
The Season and Crops—Seed Wheat Experimental Farm	264
Stray Notes of Travel in the United States	265
The Texas Cattle Disease—The Provincial Exhibition—Book Notice—Packard's Guide to the Study of Insects—Prize Lists—Muskoka Settler's Guide	266
AGRICULTURAL INTELLIGENCE:	
Show at Aberdeen of the Highland Society	267
United States Crops—Drought in England—Growth of an Australian Colony—American State Fairs—English Crops—Brief Items—Fall Shows—Wool Manufacturers' Convention—Paris Exposition	268
HORTICULTURE:	
Hybridizing Grapes—Garden Seeds—Gathering Fruit—Vineyards of the Islands of Lake Erie—Evergreens in August	269
	270
THE APIARY:	
Cause of Bees Robbing—Swarming Extraordinary—Queenless Stocks—Bees Early Swarming—Treating Bees with cold water	270
THE HOUSEHOLD:	
Citron Preserve—Clark's Excelsior Washing Composition To Remove the Skin from Peaches	271

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, can be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—
TEN COPIES for ..... NINE DOLLARS.
TWENTY COPIES for ..... SIXTEEN DOLLARS.
FORTY COPIES for ..... THIRTY DOLLARS.
ONE HUNDRED COPIES for ..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

VOL. V. No. 18. TORONTO, CANADA, SEPTEMBER 15, 1868. POSTAGE FREE.

The Field.

Pure Seed.

THE importance of using only the choicest seed, the best of its kind and free from admixture, is universally acknowledged, though unfortunately not always so carefully carried into practice as it should be, and a stricter attention to a matter of so much consequence should be urged upon farmers gene-

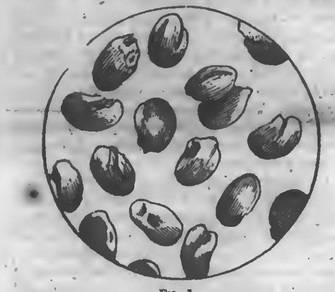


FIG. 1.

rally. Few persons now would employ small tubers to secure the best return from a potato crop. Yet the analogy between these tubers and ordinary seed is not exact; for it is in the eyes or buds that we should look for a closer resemblance, and here it must be acknowledged that the most vigorous buds will produce the most promising and thriving plants. Accordingly, it is that end of the tuber in which the

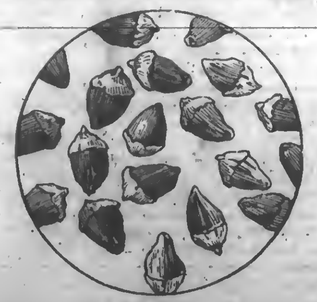


FIG. 2.

larger and more fully developed buds are congregated that all judicious planters use, and in dividing the root, take care so to perform the operation as to secure one or more of these buds in each set. This necessary care in the selection of seed is more easily and more frequently attended to in the case of the larger cereals. In planting Indian corn, the practical farmer early makes choice of the largest and finest ears, if he does not even set apart a piece of ground for the express purpose of raising seed, and bestow on this particular care in cultivation. Then, having secured the best ears, he even rejects from these all but the completely developed kernels, throwing aside those at the base and top of the cob. In wheat, again, the staple of Canadian agriculture, the greatest pains are taken to clean the grain and remove all small seeds of imperfect wheat or weeds, or foreign grain. But there is another class of seeds, in which, though the same care is called for, it is not quite so readily applied. In the case of the smaller seeds of turnips, clover, and the grasses, the minuteness of the grain renders their examination and the detection of imperfection or impurities not quite so easy. Yet the matter is not, after all, attended with any very great difficulty. In regard to turnips, it may be alleged that when so large a proportion of the plants that come up have to be destroyed in the process of singling, it is of no great consequence if a little adulteration is practised. Without admitting such a plea for careless husbandry, it may be granted that in fact there is less adulteration in the case of turnips than many other small seeds. It is the practice of seedsmen, and farmers would do well to follow the example, to test their seeds by counting out a definite number, say a hundred, and planting them; then noticing, after a sufficient interval, how many have sprouted. This will show at least the vitality of the seeds. But to detect adulteration in the case of the smaller seeds of grass and clover, some artificial aid to the sight is employed with advantage, and a good magnifying glass, or even a microscope, will be found of especial service.

In reference to this subject, an interesting article appeared recently in the *Farmer* (Scottish), from which we copy the following extract and the accompanying illustrations.

Premising that farmers are apt enough in judging of the minute differences in the appearance of the cereal grains, the writer of the article alluded to says:—"It may be safely concluded, that in order to acquire an equally discriminating acquaintance with the smaller seeds, they have only to accustom themselves to the use of the microscope, with which to magnify the smallest seeds to at least the sizes of wheat, oats, barley, beans, or others which they are accustomed to handle. Many look upon the use of the microscope as a mysterious and difficult operation, requiring far too much time, application and bother, for their having anything to do with it; but they have only to give it a fair trial in order to discover their mistake, disabuse themselves of all such absurd notions, and find, on the contrary, that it is in the highest degree interesting, instructive and useful, and even as an occasional treat to the young, its wonders will, in their estimation, vie with, if not surpass, those of the magic lantern, the kaleidoscope, and the wheel of life, while they will have a more potent influence in providing an after taste for intellectual and useful research. Many of the smaller seeds which, to the unaided eye, seem very much alike, yet present remarkably diversified, and often very beautiful appearances when viewed through a microscope of only ordinary power; and when one is accustomed so to look at them, the transition is easy to the investigation of the wide fields for micros-

FIG. 3.

copic observation which are embraced within the animal, vegetable, and mineral kingdoms.

Mixing, colouring, and killing, are all skilfully perpetrated in adulterating seeds; and all these arts, however artistically they may have been applied, are more or less capable of being detected by the microscope. Thus, with clovers and grass seeds, none are so exactly alike but that a difference can be

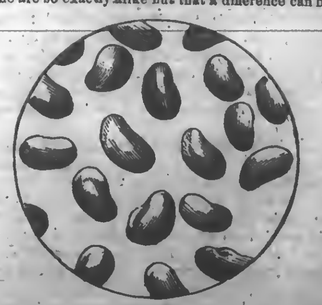


FIG. 4.

observed by a skilful microscopist, and most of the injurious or worthless kinds employed in mixing are so dissimilar that their detection is comparatively easy. This is not the case, however, with seeds of the varieties of turnips and other brassicæ, although

those of the different genera, such as common or rough-leaved turnip, Swedish turnip, rape, and even of some of their individual varieties, possess sufficient distinctive characteristics to enable a careful observer to find out whether or not they are mixed. The art of colouring has in the case of clover seed attained to great perfection; yet careful and repeated observation of the position and shading of the natural colours in the genuine seeds will serve to show the difference between them and the best examples of artificial colouring; which last is not nearly so applicable to grass and turnip seeds; but the sulphur smoking of the former, and the oil-dressing of the latter, serve to impart a freshness of appearance which the seeds do not actualy possess.

Killing is generally done by oven-heating (sub-roasting); or want of vitality may arise from extreme age in the seeds; in either case the seeds will appear dry when bruised, which is peculiarly marked in turnip, rape, and other oleaginous seeds, from the comparative dryness or absence of oil which they exhibit when crushed. Most people are familiar with the difference between fresh and roasted peas, and a similar difference in appearance is presented, under the microscope, between fresh and roasted small seeds.

For further illustrating some of the preceding results we are enabled, through the kindness of Mr. James Bryson, optician, Edinburgh, to give the four accompanying engravings from magnified photographs, prepared by him, the first three of which are from a sample of what, in market phrase, was termed "good red clover seed," and the fourth from another of good yellow clover, medick, or trefoil seed.

No. 1 shows really good plump seeds of red clover in different positions, when magnified by only a good pocket microscope. It is usually of a shaded purplish and yellowish colour, some of the seeds being entirely yellow; and at the Great Exhibition of 1862 there was a Norwegian sample similar in colour to No. 4; although the form of the seeds showed that they belonged to the true red clover—Trifolium pratense—some of our native wild varieties of which have also yellow seeds.

No. 2 represents imperfectly ripened seeds of red clover, enclosed in their still adhering husks. These as shown in the engraving, resemble small acorns with their cups attached; and in sample, they are so unlike the seeds of any of our field weeds that many have taken them for those of the dodder, the pest of Dutch clover fields. In the sample from whence they were taken these were present in about the proportion of six per cent.

No. 3 exhibits different views of the rib-grass, common ribwort, or plantain seed—Plantago lanceolata—magnified on the same scale as the others. This was present in the sample to about thirteen per cent.; and, being of comparatively little value, it is too generally introduced among clover seeds for the purpose of adding a "paying per-coniage" to the dealer's profits. It is, however, well known by its deep brown colour, somewhat shining appearance, and different shape to that of the clover seed, and being easily distinguished by the naked eye, those who purchase it from sample have themselves to blame.

No. 4. Yellow clover seed—Medicago lupulina—is of a uniform sulphury yellow colour, and more regular kidney-bean-like shape than the red clover seed, from which it also differs in possessing a distinct peculiarity of smell. None of this seed appeared in the sample from whence the preceding three were selected, although it is more employed than any other for adulterating red clover seed, both in its natural state, and when "improved" by colouring.

While fraudulent dealers have everything to lose, the fair dealer has nothing to fear, but much to gain from microscopic or other investigation; for how often do we see careless cultivators blame the seedsmen for sending them a mixture of weed seeds, when the fault of weed growth was entirely their own."

Agriculture.—Its Advantages.

To the Editor of THE CANADA FARMER:

SIR,—I propose to set down briefly some of the leading advantages and disadvantages of Agriculture, as a pursuit, and for the present shall consider the first of these topics. Agriculture is the art or science of cultivating the earth. Its object is to develop from the soil as large a quantity of vegetable products, and indirectly of animal products, as possible. *It conduces to health.* With what different feelings do the merchant and farmer leave their pillows in the morning; the one, cheerful with good health and buoyant spirits, goes forth to his labours at the dawn of day, greeted by the music of the feathered songsters, breathing the pure, fresh air, sweetly scented by the odour of the flowers; the other, perhaps after a sleepless night, walks in a thoughtful mood to his counting house, probably anticipating the insolvency of his customers, or the ill-success of a voyage. How many an invalid that has seen the ploughboy on his way to his work in the morning, whistling as he goes, has wished for a pastoral life. The evidence of statistics show that the agricultural population live to a greater age than any other. *Agriculture secures ordinary wealth.* No other occupation or profession can furnish from its own means the supplies for all our necessary wants. Food, raiment, and many luxuries, are among the fruits of the farmer's cares and labour. Although the farmer may not become so wealthy as some of our merchant princes, yet take the whole class of merchants with all the farmers, and the average wealth of the latter class, if it does not absolutely surpass, will compare favourably with the former. Not only does it secure individual, but also national wealth.

It promotes morality.—It tends to preserve the morals and raise the heart to Him who giveth seedtime and harvest. This was man's original occupation, and even now, the missionary tries, after proclaiming the gospel to the heathen, to induce them to cultivate the soil, as the best method of keeping them good Christians, and civilizing the remainder of the tribe.

It tends to independence.—With what honest pride the farmer can look over his golden fields, his richly laden orchards and growing flocks, with the happy assurance that his substance is increasing from year to year, and that he himself is far above want. The manufacturer or merchant often fails, although he may give his whole time and attention to his business, for the fault does not always lie in himself, but probably in some foreign market, or in the insolvency of some of his hitherto good customers. But what has the intelligent and industrious farmer to fear? His funds are invested in solid ground; he depends on no earthly guarantee, but on the All-wise Being, the giver of every good and perfect gift. Society is divided into the producers and non-producers. To the former class the farmer belongs, while the latter class have to depend upon the producers; hence we often hear the merchants and mechanics wishing for a good crop, and have nearly as much anxiety about the harvest as the farmer himself; they must depend to no small extent on the farmer for what they eat and wear.

The pursuit of Agriculture *gives scope for intellectual pursuits.* There is no business that demands such extensive knowlege. The farmer has to deal with the works of nature, learn the different characteristics of the earth, the air, and the seasons. He must know something of vegetable and animal physiology, entomology, etc. Besides, he must understand mercantile business. If in the future the farmers of Canada wish to be successful, they must pay more attention to agricultural education.

It is pleasant.—There is no other occupation or profession so useful, so honourable, so healthy, so happy, and so independent. Surely such an occupation must be gratifying. The pleasures of rural nature are consistent with every period of our lives. Why, then, it may be asked, has agriculture been so distasteful to farmers' sons? The hard manual labour which many of the farmers have had to enduro, and the little education which they possessed, may have hindered some from engaging in this pleasant occupation. But times are changing. Animal labour is being substituted for manual, and more recently, the natural and mechanical powers for animal labour. The use also of agricultural chemistry is coming more into vogue. These are sure indications of the progress of agriculture. The intellectual labour of the farmer is increasing, while the manual is decreasing. Science and art are rapidly multiplying his appliances and elevating his calling. "*Agriculture,*" says a recent writer, "*is an art,*—Man is the artist; the soil his laboratory; manure his raw material; animal strength and machinery his power; air, heat and moisture his agents; and grains, roots, fruits and forage his products."

CULTIVATEUR.

York Township.

How to Enlarge our Crops

To the Editor of THE CANADA FARMER:

SIR,—The following extract from a speech of Mr. Mechi, at Birmingham, deserves our thoughtful attention:—

"Keeping the crops free of weeds is, I know practically, one of the best and cheapest methods of enlarging our crops. The last saving a farmer should resort to is that of hand or horse-hoeing. The neglect in this matter is painfully obvious, and robs the country of millions annually. Don't tell me of sowing thick to smother the weeds. The cultivation is worth the money irrespective of weeds. I always horse-hoe my wheat, beans and peas, once or twice with Garrett's horse-hoe (at about one shilling sterling per acre), and hand-hoe twice or even three times, at a cost of about seven shillings and six pence or ten shillings per acre. Women afterwards hand-pick any weeds that have escaped the hoes. We know by the leaves of our flowers when there is anything wrong below: so it is with our field crops, and as I came here by rail, certain billious-looking crops indicated an uncomfortable state of their roots, owing to the want of drainage or food in the subsoil, or in consequence of weedy competition."

The above teaches an important practical lesson worthy of being learned and remembered by every farmer in Canada. We cannot of course employ hand-labour here as they can in the old country, but we may do more to secure clean cultivation than we generally do. The implement named by Mr. Mechi—"Garret's horse-hoe"—is perhaps known to you. Are you aware which of our cultivators or horse-hoes most nearly resemble it?

I have thought an implement is wanted specially to cultivate and keep clean the *borders of our fields* close up to the fences, as there the weeds are apt to accumulate. Perhaps some of our artisans connected with the manufacture of agricultural implements may devise some addition to the ordinary plough to fit it for such a purpose.

A FRIEND TO IMPROVEMENT.

Township of York, 31st Aug., 1868.

Refuse from Flax Mills.

To the Editor of THE CANADA FARMER:

SIR,—In your last number a subscriber asks:—"What is the best manner of utilizing the waste from flax mills for agricultural purposes; whether it should be rotted, and if so, what is the readiest and quickest mode of effecting this object?"

I take it for granted that by flax mills your correspondent means mills for scutching flax, and by the waste, what is commonly known as the *shives* of flax. If the mill is worked by steam, the best manner of utilizing this waste is to use it as fuel in generating steam; but if the mill is worked by water, then the waste should be used as manure. Now, it is a well known fact that the most substantial manures, if they are not well rotted, produce a less active effect on the growth of plants than the simplest fertilizers which have been reduced to a state of extreme division.

Then as to the readiest and quickest, and the least expensive mode of effecting this object, he should make a compost of the waste with horse-dung &c., turning it before it ferments too much, and if necessary, watering it with liquid manure.

A. K.

Toronto, 7th Sept. 1868.

Muck for Hops.

To the Editor of THE CANADA FARMER:

SIR,—I herewith send you a sample of stuff that I have commenced taking from a beaver meadow, for manure, composed of wild grass, sod muck, and a white composition which I suppose is marl. Will you please say, through the CANADA FARMER, what you think of the sample sent as a manure for hops planted on sandy loam; and how should it be proportioned and prepared?

JAMES MATTHEWS.

Acton, Sept. 5, 1868.

NOTE BY ED. C. F.—From the appearance of the specimen alluded to in the foregoing communication we should think the material admirably adapted for the purpose to which our correspondent is applying it; and, indeed, the soil which he describes, enriched with such manure, could hardly be surpassed for hop-growing. The white substance is shell marl, and furnishing carbonate of lime would be a valuable addition to the vegetable manure. We believe the best way to use it would be to compost it with barn-yard manure, turning the heap once or twice, and taking care to cover from the leaching effect of rains. The manure should be applied in the spring, liberally: of course it would not be lost if applied this fall. For fuller directions as to the method of applying it we refer our correspondent to the number of the CANADA FARMER for May 1, 1867. We trust his energy and industry will be amply rewarded.

ARTIFICIAL HARVESTING.—A process of artificially drying and curing hay and sheaves of grain in wet seasons has been brought before the notice of British agriculturists, by Mr. Gibbs, in a prize essay. The process, which Mr. Gibbs has subjected to the test of actual experiment, consists in passing the hay or sheaves to be dried through a shed supplied by a furnace and fanney with a continuous current of hot air. The method is endorsed by the approval of some of the best agriculturists in the kingdom.

Stock Department.

Animal Heat.

IT is common to speak of animals as either warm-blooded or cold-blooded, yet the true distinction is scarcely accurately indicated by the expression; for there are circumstances in which the so-called cold-blooded animal would be warmer than one of the other class. The difference between the two consists in the power which the first possesses of maintaining a uniform temperature under all ordinary external conditions, while the temperature of the other class of animals rises or falls with that of the atmosphere or medium in which they are placed. Among vertebrate animals, mammalia and birds constitute the warm-blooded order, and fishes and reptiles the cold-blooded. The temperature of the blood and internal parts of the body, in the first, ranges from 98° to 111°, being in the mammalia from 98° to 106°, and amongst birds from 107° to 111°. In man and the domestic animals, the ordinary temperature of the body is about 98°; and this temperature is maintained with wonderful uniformity under great extremes of external condition, varying very slightly through all the range of climate from the Arctic to the Torrid zone. With the aid of clothing, indeed, and the addition of suitable diet, man can maintain his normal temperature, and adapt himself to the condition of the external atmosphere through a range of over two hundred degrees, Fahrenheit. It is proposed in the present article to explain very briefly how this uniform temperature is secured.

The main source of animal heat is respiration. So large a share, indeed, does this function perform in maintaining the temperature of the living body, that we may confine our attention to it alone, and leave out of consideration, for the present, the nervous influence and other subordinate agencies in this important vital operation. In explaining the process of respiration in a former article, it was stated that the oxygen of the air was absorbed into the blood with each act of inspiration, was then conveyed by the circulation to every part of the body, and uniting with carbon, formed carbonic acid. The carbon employed to effect this combination is found partly in the blood itself, but is chiefly derived from the waste portions of the various tissues disintegrated and decomposed in the constant processes of change going on through life. We are all familiar with the phenomenon of the rapid production of heat by the chemical combination of these two elements, oxygen and carbon. Almost every instance of combustion exemplifies it. Carbon and hydrogen are the principal elements of nearly all combustible substances, and the act of combustion is the rapid union of these elements with oxygen, resulting in the formation of carbonic acid (oxygen and carbon) and water (oxygen and hydrogen). The degree of heat evolved in this combination is definite, and can be measured and calculated; and it matters not whether the combination takes place rapidly, producing combustion, or more gradually, as in oxidation, the amount of heat evolved in the union of given quanties of these elements is the same. Now the amount of carbon thrown off by an adult man, in the form of carbonic acid, in respiration, is, under ordinary circumstances, as much as eight ounces in the course of twenty-four hours. Were we to burn this quantity of carbon or charcoal, we should, in a very few moments, produce an intense amount of heat. Precisely the same amount of heat would be extricated within the body during the course of twenty-four hours by the slower chemical combination of the quantity of carbon specified with the oxygen of the air. We are not very far from exact, then, in stating that we maintain the temperature of the body by consuming a certain amount of fuel. How, it will next be asked, is this fuel supplied? We have said it is obtained from the blood and the waste of the tissues. In either case, the supply is obtained from the food we take. This then is the ultimate source of animal heat.

In illustration and evidence of the foregoing view, which is now generally admitted among physiologists, we may notice certain well-known facts, and deduce some important practical lessons. The relation of animal heat to respiration is seen in the constant correspondence of the temperature of the body with the quickness or amount of breathing. Thus, those animals that breathe quickest, taking in the largest amount of oxygen, and parting with the most carbonic acid in a given time, have the highest temperature. Birds, whose breathing is quicker, have a higher temperature than mammalia. Again, the temperature of any animal sinks, if its breathing is reduced in force or frequency. Thus, during sleep, when the respiration is slower than during the waking state, the warmth of the body sinks in proportion. Exercise, which quickens the breathing, raises the temperature of the body. In the state of complete hybernation, the breathing becomes remarkably slow and almost ceases, and we find the temperature of animals in this state sinking almost down to the freezing point.

There is another very important point in which this subject should be considered. The ultimate office of a large proportion of the food we take is to keep up the heat of the body, and we find a close correspondence between the amount and the kind of food we require and the temperature of the atmosphere at the time. In cold climates and seasons we consume far more food than in warmer regions or periods of the year. We relish and require, too, a much more oily and richer diet in cold weather than in hot. These facts, which are so obvious in our own case, should be borne in mind in our treatment of animals under our care; and especially should we remember that an animal exposed to cold will consume, for the mere object of keeping up its heat, without deriving a particle of nourishment, in the ordinary sense of the term, a much larger amount of food than one which is sheltered from the severity of the weather. Economy, therefore, to say nothing of humanity, requires that we should house all farm stock during the winter, or at least that we should afford them adequate shelter, and keep them as warm as is compatible with their natural habits and health.

When the temperature of the surrounding atmosphere rises above the proper standard of blood heat, the requisite balance is maintained chiefly by the perspiration of the skin. The moisture exuding in this way from the body reduces the temperature by the cooling influence of evaporation.

Veterinary Department.

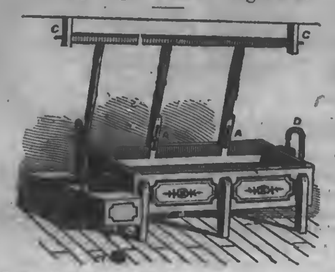
Injury and Disease of the Horse's Foot.

PUNCTURED FOOT, PRICKS, &c., form a very common class of injuries, and may result from various causes, as picking up a nail in travelling, or from pieces of glass or other sharp substance entering the sole or frog, and penetrating to the sensitive parts. The danger to be apprehended from these injuries greatly depends on the situation of the puncture and the direction it takes. If it be in close proximity to the joint, violent inflammation may be set up in that part, which is attended with very serious consequences; or the joint may be actually punctured, allowing the synovia to escape. This injury is attended with great constitutional disturbance, the horse being in a high fever. The symptoms vary according to the situation of the injury. The horse is observed to go suddenly lame, and the lameness to gradually increase. When the hind foot is the seat of the ailment, he moves with a long step and brings the foot cautiously to the ground; when standing, the fetlock joint will knuckle forward, and the heel is hot. Occasionally the lymphatics on the inside of the leg become inflamed, and the swelling will extend as far as the hock and groin. These are the symptoms presented when the offending agent has not been removed, or when suppuration has taken place as the result of the injury; therefore we cannot advise too strongly a careful examination of the foot in cases of sudden lameness where there is no visible injury. The shoe should be removed, and the sole carefully examined with the draw-knife, and any foreign body removed. The sole should be well pared in the vicinity of the wound, and if the puncture is deep, it is advisable to thin the sole all around. The foot may then be placed for half an hour in a bucket of warm water, and afterwards a poultice applied, either of linseed meal or bran; when heat and tenderness are removed, then the shoe may be applied, and it is generally safe to use a stopping of tar and tow.

Thrush or Frush is a disease often met with, and consists in a muco-purulent discharge from the cleft of the frog; the discharge is somewhat sticky and has a very fœtid odour, and is the result of a diseased condition of the sensitive frog, giving rise to an abnormal secretion which escapes from between the clefts of the frog. Thrush is oftenest found in the hind feet, and it may be produced by a variety of causes. It is occasionally a sequel to chronic diseases of the foot, as of navicular disease, and of laminitis, and is therefore frequently found occurring in the fore feet from that cause. In the hind feet it is usually produced from standing in damp, dirty stables, especially where the moisture is of an acrid nature, caused from the decomposition of the urine, &c. Horses in high condition, and more particularly such as are of a plethoric constitution, are very liable to thrush, as also to swelled legs, grease, &c. It is also most prevalent in the Spring and Fall months. In the treatment of this disease cleanliness is of the greatest benefit; indeed, without keeping the parts thoroughly cleansed, medical treatment is of little use. The affected parts should be well washed, and if the horn of the frog is detached and diseased the knife must be freely used, to cut away all detached and diseased parts, and also to allow the parts to be thoroughly dressed. An excellent application is the chloride of zinc, well diluted, which should be pressed in with a little tow and then covered up with tar. In mild cases a solution of sulphate of zinc, or sulphate of copper, has a very good effect. To prevent thrush, the feet, and particularly the cleft of the frog, should be kept clean, and an occasional dressing of tar is useful in preventing diseases, and at the same time tends to promote a healthy growth of horn.

The Dairy.

Sterling Alguire's Milk Agitator.



In cheese-making by the factory system the need of some contrivance to stir the night's milk was early felt, but the application of machinery to the purpose is a recent improvement. Milk agitators, as they are called, have now come into general use, being considered essential to a well-conducted cheese factory. The objects attained by gently stirring the milk are its gradual cooling, the removal of the animal odour, and the retention of the cream in the body of the fluid—all three very important points; and though it is true with regard to the last that the cream after it has risen may be stirred in again, still it is not so thoroughly incorporated with the milk as if it had never been separated.

The invention represented in the accompanying engraving has been found to answer the desired end most satisfactorily, and is now in extensive use, both amongst our own cheese factories and in those of the United States, where we have seen it in actual and satisfactory operation. It is manufactured by Mr. J. B. Harris, of Belleville.

The annexed illustration will sufficiently explain the principle of the contrivance, which is, indeed, very simple. The milk vat is double, the outer case being designed to contain water, which flows in at one end and out at the other, where it is received into a box divided into two compartments, and so constructed as to be capable of rocking to and fro. As the water flows into one of these compartments, it gradually tilts it over, when, of course, the water will flow into the other compartment, and as the first meanwhile empties itself through the aperture G, the second, becoming filled in its turn, will tilt the box over on the other side. This oscillating movement furnishes the power required to set the agitator in motion, as will be seen by a reference to the illustration.

Mr. Harris brought to this office a small model of the machine, which we had an opportunity of examining, and which clearly shewed the simplicity and efficiency of the arrangement. This gentleman also shewed us a number of testimonials from the proprietors of various cheese factories, all of whom spoke in the highest terms of the admirable working of this milk agitator. The most recent of these is from the Hon. David Reesor, of Markham. It is addressed to Mr. Harris, and is to the following effect:

"The agitator you put in my cheese factory gives entire satisfaction. Mr. Malone, who is in charge, informs me that it quite exceeds his most favorable expectations of the value of Alguire's Patent. I have no hesitation in recommending it as very indispensable in a well-conducted factory.

Yours truly,

D. REESOR."

We direct attention to Mr. Harris' advertisement in the present issue, and cordially commend this important invention to the attention of Canadian cheese manufacturers.

Rearing Calves.

The most important thing in the feeding of the calf is that it should receive the first milk from its mother. This milk, called *colostrum*, possesses purgative properties necessary to clear the intestines of the new-born calf. That clearance effected, the calf should be nourished for forty days with pure milk of good quality. This liquid constitutes complete nourishment, since it contains the assimilating elements necessary for the formation of the various parts of the young animal. In effect the pure milk contains:—caseine, to produce flesh; phosphate of lime, for the formation of bone; sugar of milk and butter, substances rich in carbon and hydrogen, to favor the assimilation and concur in forming fat.

If pure milk is not given in sufficient quantity—either from the cow not producing it (which is very unusual in natural suckling), or from the buttery matter being removed by skimming—the calf will not have the nourishment required for its organization. It will be less developed, remain small, and suffer during its whole life from the consequences of parsimonious and ill-directed feeding during the first period of its existence.

The calf is nearly always made to pass too suddenly from the diet of pure milk to that of skimmed milk, without adding to the milk despoiled of its buttery elements any substance capable of filling their place. To repair the loss which results from skimming the milk, we should add a decoction of flax seed; later, a decoction of beans, which contain caseine, mixed with an infusion of flax seed, which contains gum; add to this a small quantity of molasses, and we obtain a very nourishing drink.—*Gazette des Campagnes.*

New Cow-Milking Apparatus.

The *Mark Lane Express* concludes a very full notice of the Havre International Exhibition, by describing "a few odds and ends" found in the galleries. Among them we find the following account of a new cow-milking apparatus.

"As to a cow-milking apparatus, the invention of M. Liverbardon, Rue de Provence, Paris. We cannot say that we are an ardent believer in the milking of cows by mechanical means, certainly not in such as aim at effecting it by such means of a complicated character. The majority of farmers believe, and they have at least a great deal to say on their side of the question, that milking the cow, like some other operations in practical farming, is best done by hand, and that all complicated apparatus to operate this should be avoided. Certainly the apparatus now before us has not this charge of complication of parts to go against it. Nothing can indeed be more simple; it consists of a small silver tube, which is simply inserted in the orifice of the teat, and which serves as a tube by which the milk vessels completely empty themselves. The apparatus has been tried by several eminent Continental agriculturists, who speak highly of the completeness of its action and the ease with which it can be used; and whether the fact will have any weight with our readers or not, which will depend upon the views they hold of the prize system, the appliance has had a prize awarded to it at the agricultural show held at Amiens last year. Before inserting the tube, the teat should be filled or swollen out with milk brought down by hand; the tube is then inserted gently, giving it on its entrance a slight turning motion which will facilitate its passage into the orifice of the teat."

Bran for Milch Cows.

Plain bran or ship stuff, says the *Stock Journal*, is one of the very best kinds of food to increase the milk. It is not fattening. A steer could not be fattened on bran alone, and a cow, if fed on the best of hay and bran alone, might fall off in her yield, unless her strength and condition were kept up by Indian meal, or stronger food. If there were anything in which there would seem to be no strength, it is bran—the mere hull of wheat. It is not stimulating like brewer's grains, and can certainly do no harm, if it does no good; and yet any farmer who will make the experiment will find—or at least we have found—that a cow being otherwise kept in a proper condition, her yield of milk will be very considerably increased by giving her twice a day a feed of pure bran. The fact is patent, although we are not able to explain it. If there is any one article, which, while keeping up the health and strength of the cow, will also increase the supply of rich healthy milk, in our experience it is cotton seed cake meal. We have found this to have a great effect on the milk secreting organs. The cows at first do not seem to relish it, and it should be mixed with some other feed, but they soon come to like it, and we have never seen any bad effects in any way.

Meeting of the Fruit Growers' Association.

A meeting of the Directors of the Fruit Growers' Association, of Ontario, was held in the County Council Chamber, Prince's Square, Hamilton, on Monday, 7th Sept., 1868. Present, W. H. Mills, Esq., President, in the chair, His Honor Judge Logie, Rev. R. Burnet, Messrs. C. Arnold, A. M. Smith, L. Springer, W. Saunders, and D. W. Beadle.

The Secretary read the minutes of last meeting of the Board, and reported that he had communicated to the Secretary of the Board of Agriculture the resolutions affecting that body, and that he had received four essays on the cultivation of the apple, bearing the following mottoes, viz., "Vive et Disce," "Here's to thee, Old Apple-tree," "Fine Fruit is the Flower of Commodities," and "The Price of Good Fruit is Eternal Vigilance."

The Rev. R. Burnet and Warren Holton, Esq., were appointed judges upon the essays, with power to add to their number a third person if they found it to be requisite.

The Secretary presented the request of Mr. W. H. Read, of Port Dalhousie, asking for the appointment of a committee to examine his seedling grapes, eleven in number. The Directors appointed Messrs. W. H. Mills, Wm. Haskins, Chas. Arnold, A. M. Smith and D. W. Beadle such committee; and instructed them to examine them on the day after the meeting of the Fruit Growers' Association in St. Catharines.

The request of Mr. Chas. Arnold, of Paris, was presented, asking the appointment of a committee to examine his five new hybrid grapes. Messrs. D. W. Beadle, W. H. Reid, Wm. Haskine and Wm. Saunders were appointed a committee to visit Mr. Arnold's grounds an the 17th day of September, inst.

Messrs. J. Freed and A. M. Smith were appointed a committee to assist the Board of Agriculture, if required, in the arrangement and classification of fruits at the coming Provincial Exhibition.

His Honor Judge Logie, and Messrs. L. Springer, C. Arnold, J. A. Bruce and Geo. Leslie, were appointed a committee to examine the fruits that may be placed upon the table, both at the annual and October meeting, and report thereon before the close of the meeting—any two to be a quorum.

A letter was handed to the Secretary from J. R. Martin, Esq., stating that he had set out to attend the meeting of Directors, but had been obliged to return.

Mr. W. Saunders submitted to the meeting a new insect pest, which he had discovered feeding within the seed kernel of the Clinton grape, causing the berry to shrivel and drop prematurely. Mr. Saunders kindly consented to prepare a report embodying what was now known of this insect. A resolution was passed thanking Mr. Saunders for submitting this new pest to the inspection of the Board, and directing that Mr. Saunders' report be sent to the Canada Farmer for publication.

The subject of compensation to the Secretary-Treasurer was then discussed, and it was resolved that the sum of one hundred dollars per annum be granted to the Secretary, to assist in defraying expenses connected with his office.

The President and Secretary were appointed a committee to revise the catalogue of fruits, and prepare a report similar to the report made in 1863, and submit the same at some future meeting.

The Secretary was instructed to place a copy of the printed declaration in the hands of each of the Directors, to be used in obtaining new members. The Treasurer was instructed to place the funds he may have in hand on deposit, upon the best terms he can negotiate.

The Secretary was instructed to prepare the Annual report of the proceedings of the association; also to compile the reports of the fruit committee, and the discussions at meetings, and to submit the same at the annual meeting to be held in the Court House, Prince's Square, Hamilton, on Tuesday evening, the 22nd inst., at seven o'clock.

The annual meeting of the association was appointed to be held at St. Catharines, on Tuesday, the 13th day of October, 1868, at eleven o'clock a. m., to be continued through the day and evening, the subjects for discussion to be the following:—

Apples.—The best varieties for market; new varieties; picking and packing for market.

Plums.—Best varieties, and the best methods of preventing the black-knot, curculio, and other insects.

Evening session meet at seven o'clock.

Grapes.—The best earliest variety; the best varieties for market; soils adapted to the several varieties; pruning and training.

The Secretary was instructed to embody in the annual report the articles addressed to the Board on "Hybridizing," on "the Phialdelphia Raspberry," and on "the Codlin Moth or Apple Worm."

The Board appointed Wm. Saunders, Esq., of London, Entomologist to the Association, and directed that his reports on insects injurious to fruits, which may be addressed to the Directors, be sent to the Canada Farmer for publication.

The Secretary was instructed to inform the members of the association, through the reports of proceedings, that any member of the association is at liberty to send (*charges pre-paid*) any specimens of insects to Mr. Saunders, at London, which may be found injurious to any of our fruits, by preying upon foliage, fruit, flower or stem; and that while Mr. Saunders is willing to receive and examine these insects, and report thereon to the association, no member will expect that Mr. Saunders shall be put to expense in the transmission of such insects to him, or in replying to any communications respecting them.

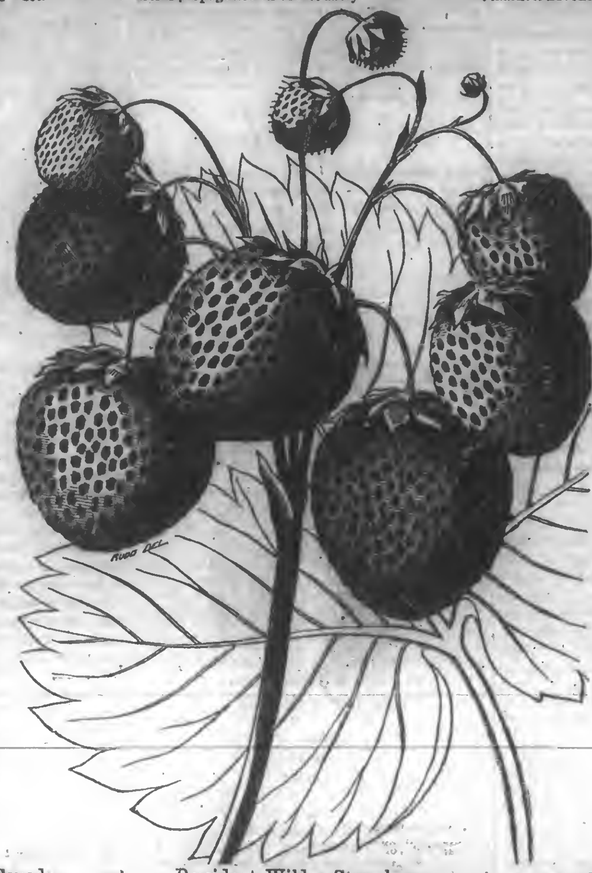
The Board then adjourned to the call of the President.

During the next season I intend to graft two thousand, hoping to confer a real benefit to orchard keepers by scattering them over the New Dominion.

THOS. HOOPER.

Columbus, Sept. 3.

Note by Ed. C. F.—We commend the enterprise of our correspondent and wish him all success. The specimens sent to us were beautiful looking apples, of a creamy colour, somewhat pear shaped, and of moderate size. They are fall fruit, not adapted for keeping. Flavour is a matter of individual opinion, but to us they appeared deficient in this respect, owing in some measure, no doubt, to over-ripeness. Some winter apples, since received from Mr. Hooper, are of beautiful appearance and excellent flavor, especially adapted for cooking, and well worthy of careful propagation in this country.



English Apples in Canada.

To the Editor of The Canada Farmer:

Sir,—Believing that the merits of English apples are not yet well known, and that the most valuable kinds do well here, I imported fifteen different grafts, four years ago last winter. I beheaded several native apple trees, forming a union between the English and Canadian fruit trees. Though these trees stood on the north side of an orchard and were perfectly exposed, yet I have not had one shoot cut back by the frost.

One of the kinds "English Stubbard" (specimens of which I forward) bore fruit the second, third and fourth seasons, and in such abundance as to astonish my friend, S. Roberts, Esq. I counted forty on two grafts.

President Wilder Strawberry.

We have much pleasure in presenting our readers with the accompanying illustration of a new variety of strawberry, the name of which, and the history of its production, are in themselves no small recommendation. Its repute is high in the State where it was raised, but how far it would prove suitable to the climate of Canada remains to be seen. We are indebted for the illustration to the courtesy of the publishers of the *Journal of Horticulture*, from the September number of which we also extract the description of the strawberry, and in doing so, would again commend this beautiful and admirable journal to the notice of our readers. The type and illustrations are in the best style, and the reading matter, to which some of the best horticulturists in America contribute, is interesting and instructive. The journal is published by J. E. Tilton & Co., Boston.

The following is the account of the Wilder strawberry:—"The plant is hardy, robust, vigorous, and very productive. The foliage is handsome and well developed; leaf dark-green, roundish, obovate, deeply serrated, of great substance, with stiff, short foot-stalks, and stands the extremes of heat and cold without injury. The flower-stalk is stiff and erect, the flowers perfect. The fruit is large, some specimens attaining to more than five inches in circumference; and many berries this year weighed more than one ounce avoirdupois each. Their colour is a brilliant crimson scarlet; form obtusely conical; the flesh rosy white, very juicy, but sufficiently firm for market; flavour rich and sprightly, inclining to sweet, with a distinct aroma of the Alpine or wood strawberry; seeds small; season late.

This variety was produced in 1861 by Mr. Marshall P. Wilder, from artificial impregnation of Hovey's Seedling with La Constante, the best two varieties, perhaps, that are now under cultivation; La Constante being the best of the foreign kinds ever brought to this country, and Hovey's Seedling being too well known to need any further mention.

For perfection of form, flavor, and brilliancy of color, combined, this strawberry exceeds anything that has been produced for a long series of years.

Mr. Wilder has been at work raising seedlings for thirty years; and although he has obtained several good ones, he never yet has got one with which he is so completely satisfied as he is with this. The description we have given above is, we believe, in substance, the description settled upon by the fruit committee of the Massachusetts Horticultural Society; to whom the question of a name was submitted, and who have called the strawberry "President Wilder." We have no doubt that it will keep Mr. Wilder's memory green for years and years to come; or that, as soon as it becomes known, it will take the highest possible rank among strawberries, and perhaps supplant everything else."

S. E. Tilton & Co. have, we understand, purchased the whole of Col. Wilder's stock, for distribution among the subscribers to the *American Journal of Horticulture.*

☞ The annual meeting of the Fruit Growers' Association will be held in the Court House Hamilton, on Tuesday, 22nd September, at 7 o'clock, p. m.

☞ All wrinkled peas, says an exchange, are superior to, and more delicate in flavor than those that present a full and perfect form; like sugar corn, the saccharine matter which they contain causes them to shrivel when dried.

Ever-Bearing Raspberries.—M. L. Dunlap says he travelled much in his time, and sat at the tables of a good many prominent horticulturists, but never was so fortunate as to find these autumn berries on any of them. He adds:—"I don't want to prevent gentlemen who can from furnishing us with such fruit; but I do want to prevent the expectations of the public being raised too high by them."

Entomology.

Specimens from a School Girl.

To the Editor of THE CANADA FARMER:

SIR,—I send you three beautiful specimens of insects. I hope they will prove interesting to you, and if so, I would like to see them re-produced in pictures in your paper, as I have often seen before. The spider I found on some scarlet beans; the moth in my bedroom; and the curious fly on a girl's hat.

I remain, Sir,

Yours respectfully,

A SCHOOL GIRL.

Mimico, September.

NOTE BY ED. C. F.—We were much pleased at receiving the above note, which was neatly and clearly written, from some fair young correspondent. We trust that her example will be followed by others amongst our youthful readers who desire to know something about the many beautiful and curious things in nature. The study of Natural History in any of its phases, no matter whether the attention is turned to ferns or flowers, insects, fishes, or birds, is, we feel satisfied, one of the best means for the improvement of the mental faculties of the young; while at the same time it renders all the common objects in the world around us sources of pure and unalloyed interest and delight. In the words of Kingsley, in his "Glaucus,"—"I have seen the young London beauty, amid all the excitement and temptation of luxury and flattery, with her heart pure and her mind occupied in a boudoir full of shells and fossils, flowers and sea-weeds, and keeping herself unspotted from the world by considering the lilies of the field, how they grow."

The spider sent us is a very beautiful black and golden-yellow specimen of these usually rather repulsive creatures. Its Latin name we do not know, as we have not made a special study of these useful animals. We do not suppose, however, that our correspondent has any particular anxiety to be enlightened on that point. The moth is called the Crimson Underwing (*Catocala concumbens*, Walk.). When its wings are closed, it presents the appearance of a flat mottled-gray triangle, very like the bark of the trees on which it reposes during the daytime; but peep at its underwings, and then you will see what a thing of beauty it is—they are of a rich crimson colour, with a broad black band across the middle, and a black border fringed with white. There are about twenty different kinds of these moths in Canada, some with the underwings of various shades of red, some of yellow, some white, all having one or more bands of black, while others, again, have these wings entirely black above, but with the usual bands beneath. The fly is one of those commonly called "May Flies," (*Ephemera*); they have light, gauzy wings and slender bodies, with long antennæ in front, and two excessively long tails behind. In their first stages they live in the water, some say for as long as three years, but when they obtain their wings, they live but for a single night, coming out at sunset, and dying the next morning; a few stray specimens, however, live sometimes for ten days or a fortnight. Early on a bright summer morning we have occasionally seen tens of thousands of them dancing merrily in the sunshine over the shore and shallow margin of the lake; up-and-down, up-and-down they go, enjoying their short existence to the utmost. We must defer any illustration of these interesting creatures for another occasion.

☞ The coffee trees in Madras and that part of the East Indies are greatly troubled with the coffee borer, an insect similar to the borers we have had in the acacias.

The Horned Corydalis, or Shad-fly.

IN our issue of Aug. 1, we mentioned the receipt of a communication from Mr. Walter Tait, of Beverley, accompanied by a specimen of the female of this insect. (We regret that by a typographical error the name was mis-spelt "Chad Fly," instead of "Shad Fly.") He writes as follows:—"Enclosed I send for your inspection, an insect, which from its peculiarly ferocious appearance, has excited the curiosity of every one who has seen it. Never having met with an insect of the same kind during a ten years' residence in Canada, nor found among old settlers one who had seen such a specimen, I thought that perhaps it might be a native of some tropical country, which, in consequence of the unusually hot weather we have had, may have migrated to our usually more temperate region." The terrible hot weather of July was certainly tropical enough to warrant us in expecting the advent of any monsters dire from the regions of the equator; the specimen before us, however, of which we give an illustration, is not to

be classed among these, notwithstanding its portentous aspect, but is a veritable native of Canada. We have taken them from time to time ourselves, and have occasionally had them brought in to us by astonished captors, who not unnaturally deemed that they were prodigiously valiant in venturing to touch such a horribly ferocious-looking animal. Its looks belie it, however; for, though so big and formidable in appearance, it is one of the most harmless insects that we have. It belongs to the order *Neuroptera*, which includes also Dragon-flies and other net-winged insects—and is called the *Corydalis Cornutus*. Its larva is a broad flat worm with six legs, and a row of long spiny filaments on each side of its body, living in the water and preying upon various aquatic insects. When about to assume the pupa state, it crawls out of the water and hides itself under some log or stone on the river-side, where it is often found by fishermen, who make use of it as bait, and call it by the expressive name of "crawler." It takes about three weeks to arrive at its perfect state, and then it comes out with huge wings to fly about at night, and provide for the due arrival of a new generation. The jaws of the female that we have figured are by no means small, but they are nothing when compared with those of the male, which, to use an expressive phrase, are "a regular caution," being about an inch long, curved, and crossing each other in the middle like a pair of scissors!

An Emperor Moth's Cocoon.

We have received from "B," who writes from Kincardine, Co. of Bruce, a tin box, enclosing a carefully packed specimen of an Emperor Moth's cocoon. It was found, he states, "firmly fastened to the branch of an apple tree, and so securely did it adhere with its parchment-like covering that it required considerable effort to detach it;" as he had never seen anything like it before, he sends it to us for identification.

This pod-like cocoon, formed of strong silken fibres so firmly agglutinated together as almost to resemble parchment in texture, is the last stage but one in the life of one of our largest and handsomest insects—the Cecropia Emperor Moth. The caterpillar, which is hatched from a round, flattened, brown and white egg, is, when fully grown, a huge, fat, humped worm, three or four inches long, and thicker than a man's thumb; it is of a beautiful green colour, adorned with singular blue, yellow, and coral-red warts on the back. It feeds on the leaves of apple, plum, cherry, and numerous other trees, to a twig of which it attaches its cocoon when done feeding, and there it remains, exposed to the frost and snow, and bitterest blasts of winter, unaffected by them all, ready to come out a beautiful winged moth when genial June comes round again. This moth is the largest insect we have in Canada, its wings expanding to a breadth of six or seven inches. We shall not describe it particularly now, as we purpose giving an illustration of it before long.

Poultry Yard.

Fancy Pigeons.

To the Editor of THE CANADA FARMER:

SIR,—Perhaps a few more observations on the Pigeon tribe may not be unacceptable to your readers. I am afraid I cannot offer anything new, or that may not be found in Tegetmeier's, Eaton's, or other modern works on the subject; but I have found few, even of those who call themselves fanciers, in Canada, know anything, or comparatively anything, about it.

As a rule, the specimens of pigeons exhibited and kept in Canada are very inferior. I hope I may not "catch it" for this sweeping condemnation, but it is truth, and the sooner told the better; and my advice to those who are inclined to keep pigeons is to clear their lofts of all their rubbish, and invest in a *few* pairs of the correct specimens, by importation from England. Perhaps it would be as well to give an illustration of my meaning by reference to a few kinds. I will begin with Carriers. Well, with the exception of my own, I do not think I have seen a Carrier since I left England. I have seen one or two Horsemans, and very indifferent Dragons. Unsophisticated persons are very apt to call all these birds Carriers, but a true genuine English Carrier is a fancy bird, very hard to obtain; and to keep them up to the standard is still harder. Great circumspection is required in the selection of breeding stock and matching; and the worst is that neither this nor any good stock can be had without paying very high prices, not justified at present by the demand for them. But then it is useless having inferior stock; so that it is simply do without, or pay the price; and it will then take from three to five, and on to nine years, to get up such studs as I have seen at Hayne's Potter's, &c. There is one good thing about them,—they are, as a rule, good nurses, and take care of their young; and my experience of Canada is that it suits them. The atmosphere takes liberties with their plumage, especially the "dun;" and due allowance must be made for this at exhibitions. Indeed I know of no bird harder to judge in close competition. For the points of these birds I must refer you to Tegetmeier's Pigeon Book; it would take up too much time and space to enter into them here.

These remarks will apply in many points also to Pouters, few good specimens being seen. You will find a bird with a large crop, and no legs, short tail, &c., and no length. The first point in a Pouter is length of leg, or limb, as it is called; then length of body or feather, and crop, and last of all, I say, colour. You will find well-marked birds in Canada, but you will require to be told they are Pouters or you would not know it. I put colour last, on the principle that a good horse cannot be a bad colour, nor a good Pouter either.

With regard to *Tumblers* of the common variety, I believe there are some good specimens, as far as tumbling and flying are concerned. There are some fanciers in Montreal who train their flights. I should say the colour is mostly indifferent, but I have seen some, though only a few, very good as to colour, especially Almonds. Bald-heads are few and far between; Beards are better. It will perhaps more plainly illustrate the real *status* of these birds by saying that any like them could be purchased in England for three shillings a couple.

As for *Short-face Tumblers*—where are they? There are a few attempts at them, but the real thing I have never seen since I left the old country.

The *Jacobins* to be seen in Canada are too large, mousey-headed, long-faced things, often odd-eyed, bad coloured, and inferior in the hood and chain. There are very few good, if any.

At some future time I may resume the subject, if you think these remarks of sufficient interest to your readers.

F. C. HASSARD.

Roup in Fowls.

A SUBSCRIBER, from Paris, sends the following communication:—"About a week ago, my fowls were attacked by a loathsome disease, the symptoms of which are running at the nose, watery eyes, dull appearance and gaping. Can you or any of the readers of your paper give me a cure for it, and tell me what disease it is, and how game fowls are more subject to it than any other class of fowls?"

The disease described by our correspondent is a very common, contagious and fatal disorder, called roup. We are not aware that it is at all more prevalent among game fowls than any other variety. We are sorry that we cannot say much on the subject of a cure for this troublesome complaint. If the fowls are not very valuable, it is almost better to destroy them than undertake the trouble of the cure, or run the risk of the spread of the malady. We will give our correspondent, however, the benefit of Tegetmeier's remarks on the treatment of such cases.

"Warm, dry lodging, and stimulating, nutritious food, are the first essentials to recovery, in addition the frequent removal of the dried discharge from around the eyes and nose, by warm bathing, must not be omitted. In the way of internal medicine, I find that nearly equal numbers recover under various modes of treatment. I have tried the following remedies, viz.: iodine in tincture, mercurial ointment, and nitrate of silver, all applied externally to the sides of the face, without any advantage. Internally I have given calomel, sulphur, citrate of iron, calomel and opium, cayenne pepper, and sulphate of copper, without any very well-marked or decided improvement. The direct application of some remedial agent to the diseased membrane promises the best result; but here we are met with the difficulty as to the application, for the nostrils are closed up and it is nearly impracticable to pass anything through them. A very small bent tube can, however, be readily passed into the cavity of the nose through the slit in the roof of the mouth; and I have tried the effect of injecting a few drops of a dilute solution (ten grains to the ounce of water) of sulphate of copper, with very favourable results. The injecting tube is readily passed into each nostril, if inserted into the anterior part of the slit seen in the roof of the mouth, and directed outwards at right angles to the slit.

"In very severe chronic cases, when there has been much swelling of the face, I have opened the side of the face, and removed the diseased secretion in a solid form."

Standard of Excellence in Exhibition Poultry.

CREVE CŒURS.

THE COCK.

Crest—As in Polish Cock, but perfectly black; white feathers a defect, but not a disqualification.
Head—As in Polish Cock.
Comb—Brilliant red, two-horned in shape, but free from tynes; slightly sprigged at base, of good size, showing well in front of the crest.
Eye—Full, bright, and very vivacious
Deaf-ears—Small and nearly concealed.
Face—Red, well muffled.
Wattles—Moderately pendulous, and evenly rounded, brilliant red
Muffling—Close and thick, running to back of the eye in a handsome curve.
Beak—Black, with horn-coloured tip, strong and well curved, with highly arched broad nostrils, as in Polish.
Neck—Moderate in length, thickly hackled, well arched, and carried a little back.
Breast—Broad and full, carried well forward.
Back—Wide, perfectly straight, and free from deformity.
Body—Long and square.
Wings—Closely set and well clipped up.
Tail—Full and ample, well sickled, and carried rather erect.
Thighs—Rather short, well set in body.
Legs—Black or slate; shorter the better, rather fine in bone; free from feathers.
Carriage—Upright, smart, vivacious, and watchful.
Colour—Brilliant black; red or straw feathers in the hackle and saddle undesirable, but not a disqualification.

THE HEN.

Crest—Full and globular, as in the Polish black; white feathers objectionable, but not a disqualification.
Head—As in Polish.
Eye—Full and bright.
Deaf-ears—Small, hidden by muffling.
Muffling—Thick and full, extending well back to crest, and forming a thick beard under the beak.
Wattles—Very small, and neatly rounded.
Neck—Thick and arched.
Breast—Full, plump, and carried well forward.
Body—Square, carried low.
Back—Straight and broad.
Wings—Well clipped up.
Tail—Large and well expanded.
Thighs—Short and well set into body.
Legs—Short as possible, free from feathers, rather small in bone, slate or black in colour.
Carriage—Upright and vivacious.
Colour—Brilliant black; a brown tinge very undesirable.

POINTS IN CREVE COUR.

Size	4
Crest	3
Shape and symmetry	2
Colour	3
Condition	2
Comb	1
	15

DISQUALIFICATIONS.

Deformity of any kind.
Coloured feathers elsewhere than in crest, neck, or saddle.
Feathered legs, and shanks of any colour than black or slate.

HOUDANS.

THE COCK.

Crest—Composed of hackle feathers; full, and well arched, falling back, and right and left of comb, clear of the eye rather than over it.
Comb—Well developed, large, red and branching, broad at base, well indented, looking like a mass of coral with antler-like branches, inclining rather backward into the crest.
Beak—Curved, with nostrils wide and cavernous, as in Polish; dark brown colour.
Eye—Large, full, bright, and lively; colour, various.
Wattles—Thin, rather long, neatly rounded, and bright red.
Muffling or Beard—Full and thick under beak, and reaching well back in a curve to the back of eye.
Face—Red; less seen the better.
Breast—Deep, full, and plump.
Back—Wide and straight.
Wings—Moderate, and carried well up.
Tail—Moderate, erect, and well sickled.
Thighs—The shorter the better.
Legs—Fine in bone, white or shaded.
Toes—Five in number, the fifth curved upward at back.
Colour—Broken black and white, as evenly broken as possible; free from coloured feathers, which, however, though objectionable, are not a disqualification.
Carriage—Lively, brisk, well set up and spirited,

THE HEN.

Crest—Large, compact, and even, as in Polish.
Comb—Small, branching, and coral-like.
Eye—Full and bright.
Wattles—Small, red, and neatly rounded.
Muffling—Full, forming a thick beard reaching back to the eye.
Neck—Rather short; full feathered and arched.
Breast—Full and deep.
Back—Wide and straight.
Wings—Moderate, and carried close to the body.
Tail—Moderate, and fan-like, carried well up.
Thighs—Short.
Legs—Fine in bone, white or shaded in colour.
Toes—Five in number, the hind or fifth claw curved upwards.
Colour—As in Cock.
Carriage—Brisk, and rather upright.

POINTS.

Size	4
Crest	4
Symmetry	2
Plumage	2
Condition	2
Five claws	1
	15

DISQUALIFICATIONS.

Absence of crest.
Deformity of any kind.
Main colour or ground colour other than black and white.

LA FLECHE.

THE COCK.

Beak—Black, strong, and curved; nostrils wide and cavernous, as in Polish, with small spot or knob of bright red flesh at junction of nostril with beak.
Comb—Branching and antler-like, like two horns pointed straight up, brilliant red.
Ear-lobes—Large, and as white as possible.
Head—Long.
Eye—Bright, large, and watchful.
Face—Red, and rather bare.
Wattles—Red, long and pendulous, well rounded.
Neck—Long, rather curved, and upright; hackle thick, but rather short.
Back—Very long and broad, slanting towards the tail.
Wings—Long, and well clipped in.
Breast—Broad, and rather full.
Tail—Rather small, and carried low.
Thighs—Strong, long, and well set into body.
Legs—Long, strong, and black or slate in colour.
Toes—Four.
Plumage—Close and hard, brilliant metallic black
Carriage—Very upright, dignified, and watchful.

THE HEN.

Beak—Black, strong, and curved; nostrils arched, broad and cavernous.
Comb—Double-spiked and branching, standing well up, or the branches inclining a little forward, small.
Head—Long.
Eye—Bright and watchful.
Face—Red and rather bare.
Deaf-ears—Small and white.
Wattles—Red, small and neatly rounded.
Neck—Long and straight.
Back—Broad, and tapering towards the tail.
Body—Wide and deep.
Breast—Very broad.
Wings—Large, and well clipped up.
Tail—Small in proportion, but well expanded, and carried upright.
Thighs—Long and well set into body.
Legs—Long, well boned, black or slaty in colour.
Plumage—Brilliant metallic black, close and hard.
Carriage—Upright, dignified, and watchful.

POINTS.

Size	6
Comb	3
Shape	3
Condition	3
Deaf-ear	1
	15

DISQUALIFICATIONS.

Plumage any colour but black; presence of crest; feathered legs; deformity of any kind; legs any colour but black or dark.

The above description of the points in French fowl does not appear in the Standard of Excellence, published by the London Poultry Club, but is extracted from Tegetmeier's Poultry Book.

☞ A sitting hen in New Bedford has come off the nest with thirty-five chickens, without wearing crinoline.

Correspondence.

Queries from a New Settler.

A CORRESPONDENT requests answers to the following list of queries:

1. Which do you consider the best farming districts in Ontario?

2. Can a first-class cleared farm be had on lease, as in England, say for a term of seven, fourteen, or twenty-one years?

3. What capital would be required to properly work and stock a farm of 150 or 200 acres, and about what profit ought to be made on the capital after deducting expenses?

4. I spent, say the first fifteen years of my life on a first-class farm in England, have had experience in three counties in England, have a general, thorough, I don't profess *perfect*, knowledge of stock, arable and pasture farming. Would my previous experience be advantageous to me in this country, or not?

5. The style of farming I should pursue would be that of some of our best Canadian farmers, always keeping a sharp eye to the minor matters of the concern, purchasing my stock with a view of their growing into money, rather than keeping them for show, avoiding, at least for the present, anything like model or scientific farming, but rather endeavouring to conduct my business as a well managed mercantile concern ought to be conducted, viz: to pay for labour and capital. Do you think I should succeed?

6. What time of the year is the best to take possession of a farm?

ANS.—In offering our replies to the above queries, we must premise that the questions are so general and cover so much ground, that it would require a treatise on Canada to answer them fully. Moreover, he brings up the unsettled question as to which is best, the eastern section of Ontario, from its proximity to market, or the western section, from its supposed greater fertility.

(1.) Each section has its adherents, who think that nothing can equal their own homes. We must therefore recommend personal enquiry in the several districts. Each man applied to will probably urge the claims of his own locality, bringing forward the best arguments in its favour, and leaving out of sight perhaps its disadvantages. For these the enquirer must make due allowance.

(2.) First-class farms can be leased all over the Province on excellent terms for the tenant. Rents range from $1.50 to $4 per acre, according to the amount of cleared land, the value of the buildings, and the proximity to market.

(3.) Hundreds of tenants in Canada lease improved farms of 100 to 200 acres on a capital of from $400 to $2,000. In Canada, as in England, the more capital a man has on his farm (provided common prudence is used) the better he will succeed. There is no stated rule here as in England, stipulating for a certain minimum amount of capital in proportion to the number of acres to be leased.

(4.) Knowledge of English farming, and a competent judgment as to cattle, horses, and sheep, are always an immense assistance to a man commencing farming in Canada. Indeed, if his practical acquaintance with land and stock is yet to be acquired, he had better not buy a farm.

(5.) We cannot pass an opinion on this head without some personal knowledge of the querist. But we can see no reason why he should not succeed, nor why he should start with the determination of eschewing *scientific* farming.

(6.) The end of winter, or early in the spring, say 1st of March, is a common time to enter on a farm, but there are many advantages in taking possession in September or October. The land is often left in poor condition by a tenant who does not contemplate remaining, and who does not therefore think it worth his while to fall plough or manure. The incoming tenant, if he enter in the fall, can attend to these matters himself, and has time to get settled in his new home before the hurry of spring work begins.

Caution to Smokers.

A Simcoe paper gives the following account of an accident from carelessness in smoking:—"A farmer in Windham, who was hauling in oats last week, while seated on the load with two little boys, used a match to light his pipe. The match was thrown away apparently extinguished, but directly after it was discovered that the load was on fire. The horses then ran away, a perfect stream of fire pouring from the oats. The farmer was thrown from the load, but the little boys clung to it. The horses were at length stopped by some parties on the road, when they were detached, and the boys rescued from the burning load."

To this our correspondent "Denizen," who sends us the above clipping, adds "another caution to smokers" from his personal recollection. He writes:—"About twenty-five years ago, a farmer driving down Queen street, Toronto, set fire to his load of hay by a spark from his pipe; he was driving pretty fast with a stream of fire in his rear. Passers-by called out and warned him of his danger; but the moment the horses came to a halt the whole load became enveloped in flame, so that he barely escaped with his life. The horses were both ruined by the fire, and could only be liberated by cutting the hame straps and leading them out of their harness. When I saw the place a few hours after, nothing remained to the poor farmer but his horses, and they dreadfully burned, with hardly a hair left of their fine flowing tails, and a pile of old tires and irons from the waggon and harness."

COMMUNICATIONS DEFERRED.—Several communications, received too late, or for want of space, are unavoidably postponed.

The Canada Farmer.

TORONTO, CANADA, SEPTEMBER 15, 1868.

New England Agricultural Fair.

[EDITORIAL CORRESPONDENCE.]

NEW HAVEN, Connecticut,
Sept. 4, 1868.

THE fifth annual exhibition of the New England Agricultural Association, an organization embracing the whole of Yankeedom, properly so called, commenced here on the 1st inst., and closes to-day. As this is one of the handsomest cities in the United States, and owes its beauty chiefly to its rural adornings, a brief description of it will not be inappropriate by way of preface to some account of the fair. New Haven occupies a beautiful plain, at the head of New Haven Bay, four miles from its entrance into Long Island Sound. It is 160 miles south-west of Boston, and seventy-six miles north-east from New York, being in a direct line between the two cities. The plain on which New Haven is built slopes gently toward the water, and is environed on all sides except in the direction of the harbour by hills, two of which, called East and West Rocks, are very rugged and precipitous, rising almost perpendicularly from 300 to 400 feet in height. Three small streams flow across the plain, emptying into the bay. They are bridged at several points, in one instance with a draw-bridge, which leads from the steamboat landing to East Haven. The streets are usually four rods wide, intersecting each other at right angles. Those on which the best private residences are built exhibit a particularly neat and elegant appearance, from the fact that the dwellings are for the most part detached, and surrounded with shrubbery and gardens, which are tastefully laid out and well kept. Hill House Avenue, a delightful suburb, is a paradise of foliage and flowers. But the crowning glory of New Haven is its noble and lofty elms. These have long given it the appropriate designation of "Elm City" and "The City of Elms." The principal public square, comprising about sixteen acres of land, is bordered with majestic elms, and crossed by avennes, on each side of which is a row of the same trees. One whole side of this magnificent square is occupied by "Yale College" buildings. This is one of the oldest and most renowned of the many educational institutions in the United States. The College buildings have for the most part no architectural attractions, consisting of eight plain brick edifices, five of them four stories high, containing study and sleeping rooms for the students, and the other three, each surmounted by a tower or spire, being the chapel, observatory, and lyceum. In the rear of these plain buildings are some of more modern erection, that have some architectural pretensions. Chief among them is the library, a costly and handsome Gothic structure, (fire-proof), 150 feet in length. The Medical College, a handsome granite structure, stands a short distance farther off. The other three sides of the great square are occupied by stores, hotels, churches, and private dwellings, while actually on the square stands the State House, a large stuccoed building, modelled after the Parthenon. Nothing can exceed the beauty of the elms. No wonder they are the pride of New Haven. Whether singly or in rows, the elm is a grand tree, its variety of shape, and gracefulness in every part of its outline, giving it an indescribable charm. There is hardly any other forest tree that, planted as these are, without intermixture with other trees, would not look monotonous. If this fine elm-bowered square were surrounded by log-houses or shanties it would still be a charming spot. It is not from costly architecture that this scene derives its loveliness, but from so cheap and universally practicable a thing as tree-planting. We have often advocated this means of imparting beauty to country homes, villages, and towns, but no language we can find can do justice to the example of its effect as seen in this city. To give our readers some faint idea of a scene which perhaps few of them will ever have the privilege of beholding as we have done, we present herewith a couple of engravings prepared by our artist from photographs. The first represents College Street, with Yale College buildings on one side, and the State House on the other. The second engraving shows Temple Street, the finest of all the elm-arched avenues that cross the square. Did ever series of Gothic arches present so magnificent a perspective as this double row of elms? Yet there is not a village in our land that might not have in time just such a natural archway, if the population would only plant trees. The early settlers in New Haven, by whom the trees were planted, have left an enduring monument behind them which will keep their memory green to the end of time. There are some exceedingly fine public buildings and private residences in New Haven, but it is the concurrent testimony of all who have been here, that this place owes more to nature than to art, and that its chief charm arises from what might adorn the humblest and most unpretentious cottage home.

But to the fair. It is held in Hamilton Park, a very convenient spot, about a mile and a half from the heart of the city. The exhibition consists of two departments, the agricultural show, properly so called, and THE RACES. It is most extraordinary to what an extent the horse-racing mania has got the ascendency in the New England Agricultural Association. The managers of the concern seem to be possessed with the idea that without the races they cannot make the annual fair pay. Hence they not only tolerate, but encourage this objectionable appendage, even to the extent of allowing gambling pools to be openly sold at auction. The same unscrupulous greed which admits racing has led to the licensure within the grounds of such a collection of wretched catch-penny side-shows as we never saw

huddled together before. It is said that a couple of lawyers once went into partnership in the city of New York, whose names, when associated on the "shingle" they stuck up, read "Catchem & Cheatem." This is probably apocryphal, but it would really seem as if Catchem and Cheatem were the presiding spirits at this exhibition, in the very heart of steady-going New England. The determination to make the thing "pay" seems to have been the ruling purpose, without much regard to the means whereby the end was to be brought about.

The combined attractions of agricultural fair, races, and side-shows, have proved irresistible to a large number of people. It is estimated that from 20,000 to 25,000 people were on the ground yesterday. The charge for admission to the grounds is fifty cents each and every time, to all non-members. Beside this, admission to the grand stand, where some thousands can have a good view of the racing, is twenty-five cents extra. What with members' fees, admission tickets, grand stand charges, side-show licences and the sale of gambling pools, quite a pile of money must be scraped up. But certainly the keen dealers in basswood hams and wooden nutmegs, and the class of people concerning whom it is proverbial that they and their money are soon parted, have not as yet all emigrated from New England to parts unknown.

Barring the objectionable features just referred to, the agricultural display is a good one, and it says very little for the intelligence and public spirit of New Englanders, that such an exhibition would not draw a large attendance of visitors without racing and gambling appendages.

[THE LIVE STOCK.

There is a large muster of horses, chiefly, however, of the carriage and roadster classes. Some spans are beautifully matched, and really magnificent animals.

Single horses too, of very fine appearance, are numerous. The race-horses are not much to look at, but are lanky, ill-proportioned brutes, almost without exception. Eleven thorough-breds are exhibited; seven of them the property of W. W. Chenery, Belmont, Mass., and among them are some remarkably good specimens. The general purposes class of horses is well filled, and for practical utility, both on the farm and road, they are all that could be desired. A number of highly promising colts are also shown. The cattle department, as a whole, is in advance of anything in that line which we remember to have seen at any fair in the United States. We certainly did not expect to find such an array of Short-horns. Some of the choicest specimens of the Dutchess blood, and other favourite strains, are here. Mr. H. M. Arms, of Springfield, Ill., shows a fine herd, recently purchased by him of Mr. Burdett Loomis, of Windsor Locks, Ct., who having resolved to concentrate his attention on sheep, sold the valuable collection of Short-horns he had been carefully getting up for some years. Among them are "6th Duke of Thorndale," and his son by "2nd Lady of Oxford," "4th Lord Oxford," "Tyke," a three-year old heifer, and "Gem of Stony Brook," all very choice animals. Messrs. A. J. Cass, Holliston, Mass.; B. Sumner, Woodstock, Ct.; C. Spooner, Bridgeport, Ct.; A. M. Winslow and Sons, Putney, Vt.; and A. W. Griswold, of Morrisville, Vt., also exhibit in the Short-horn classes. The last named gentleman shows "14th Duke of Thorndale," of which he is the fortunate owner. Devons are out in strong force, the chief exhibitors being Harvey Dodge, of Sutton, Mass.; E. H. Hyde, Stafford, Ct.; Stanley Griswold, Torringford, Ct.; and W. Mattoon, Springfield, Mass. A very noticeable feature among the Devons are the working oxen. New England farmers wisely make large use of oxen as well as horses, and Devons or Devon grades are the favourites for working cattle. The display in this class is something remarkable. One exhibitor, Marshall H. Day, of Chesterfield, N. H., shows two pair of twin cattle all from the same dam, a good native cow, and sired by a Devon Bull. These four oxen are wondrously alike. Each pair is perfectly matched. One pair, five years old, weighs 3,900 lbs., and the other, seven years old, weighs 4,200 lbs. The younger team is valued at $600, and the older one at $700. A pair of Durham grades, owned and exhibited by the same individual, and weighing 3,800 lbs., is valued at $500. Those who have only seen the ordinary style of ox teams, rough, scrubby, unshod and unkempt, can have no idea of the fine appearance presented by a first-class New England ox team, groomed, shod, and trimmed up, like a stylish pair of horses. Besides the full-grown Devon and grade oxen, there is a very fine display of steers. The Alderneys and Ayrshires are numerous and of prime excellence. Messrs. Converse and Flagler, of Arlington, Mass., exhibit two Alderney cows, "Lady Milton" and "Cream Pot," that gave an average of *nineteen quarts* of milk each daily, during the month of June last, from which an average of two lbs. twelve oz. each of butter was made; or *twenty pounds* per cow, weekly. Messrs. Wallace Barnes, of Bristol, N.J.; John Brooks, Princeton, Mass.; Thos. Fitch, New London, Ct., are, in addition to the firm already mentioned, the chief Alderney exhibitors. Ayrshires were shown by Messrs. H. S. Collins, of Collinsville, Ct., and W. Birnie, of Springfield, Mass., both of whom have large and fine herds; also by S. M. & D. Wells, of Wethersfield, Ct., and Thomas Fitch, of New London, Ct., who have some excel-

STATE HOUSE AND YALE COLLEGE BUILDINGS, NEW HAVEN.

TEMPLE STREET,—NEW HAVEN.

lent animals. The last named gentleman shows some fine Alderney and Ayrshire Grades. Dutch or Holstein cattle are exhibited by Mr. W. W. Chenery, of Belmont, Mass., who has no fewer than twenty-six head of these cattle on the ground. They are clumsy and rather coarse-looking animals, invariably black and white, mixed and mottled; the cows, from the size of their bags and escutcheons, ought to be good milkers, but we do not know of any special advantages they have over other good breeds beyond this, that they illustrate the proverb, "variety is pleasing." There are some excellent specimens of native cows, that we should take to be fine milkers. Two side shows of extra fat cattle invite the patronage of visitors. One of "Lady Hampden," three-fourths native and one-fourth Short-horn, said to weigh 4,060 lbs., and the other of "Gen. Grant," a seven-eighth Durham ox, pure white, reputed to weigh 5,100 lbs., and owned by Carlos Pierce, Esq., Derby, Vt. The show of sheep is very fair, but not so extensive in the Merino classes as might have been expected considering that the fair is held so near Vermont, the paradise of "American Merinos." They are in more than due proportion to the rest of the sheep classes. "Golden Fleece" is here, the marvellous "critter" for which $15,000 has been offered and refused. One does not know whether to regard the offer or the refusal as the greater piece of folly. The owner of this paragon is Mr. E. S. Stowell, of Cornwall, Vt. Messrs. L. J. Wright, of Weybridge, J. D. Wheat, of Putney, and J. Holden, of Westminster, all Vermonters, also exhibit in this class. Mr. Burdett Loomis, of Windsor Locks, Ct., has a very choice and valuable flock of Cotswolds, fifty in all, and among them some costly importations from Messrs. Garne and Lane, and other noted English breeders of Cotswolds. "Senator," "Sir Robert Napier," and "Duke of Edinburgh" are splendid rams, and are matched by ewes of equal excellence. Mr. Byron Loomis, of Suffield, Ct., cousin of the last named gentleman, is also laying the foundation of a Cotswold flock in some valuable importations which he exhibits. Mr. Sherman Hartwell, of Washington, Ct., has also some good animals of this breed. A few Southdowns of medium quality are shown by Mr. H. L. Stewart, of Middle Haddam, Ct. Mr. Chenery, already mentioned, exhibits a pair of Lincoln sheep, first-prize takers at the Royal Agricultural Show at Bury St. Edmonds. He has also curious specimens of the Caraman or flat-tailed sheep, with huge flat tails weighing thirty or forty pounds; of the Texel or Mouton Flandrin sheep from Friesland; and a pen of very pretty, snow-white Angora goats. Only a few swine are shown, chiefly Chester Whites. There is a pen of Suffolks and another of Yorkshires. The poultry show is very meagre, and only a few of the coops are really good. A patent hen's nest, intended to seclude the hen while laying, is exhibited. When the fowl steps into the nest, a pair of doors, perforated with holes for ventilation, close upon her, and when she steps out of the nest the doors open for her exit. A patent water fountain is also shown, which seems to work well. The patentee of the nest is Mr. Hiram Stevens, of New Haven, Ct., and of the fonntain Mr. R. D. Blinn, Lexington, Mass. Before dismissing the live stock, it will be proper to mention that some artificially hatched trout, a year old last April, and averaging a quarter of a pound in weight, are exhibited. Their size surprises every one. Several parties in this country are now engaged in the breeding of trout, and "fish farming" bids fair to take rank beside "fruit farming" and other modern agricultural improvements. The trout exhibited on this occasion were raised in "Cold Spring Trout Ponds," Charleston, N. H. Spawn may be procured at $8 per 1000, and young trout at $25 per 1000, Am. Cy., by sending orders to that address.

IMPLEMENTS.

A most varied, extensive, and excellent assortment of agricultural tools, machines, and implements is collected, and the briefest mention of all that is worthy of notice would convert this narration into a catalogue. To begin with ploughs, here they are of all sorts and sizes, stubble or old ground ploughs, green-sward ploughs, deep tiller ploughs, self-sharpening ploughs, double mould-board ploughs, sub-soil ploughs, side-hill ploughs, gang ploughs, reversible ploughs, prairie ploughs, and last, but not least, the Doe plough, which took the first premium at the New England Fair in 1867 over sixty-three other ploughs that competed with it. The "Ames Plow Company," of Boston (they reject the "ough" mode of spelling the word) are the chief exhibitors of ploughs, and indeed implements in general. Everything they manufacture is of the very best material and workmanship. They have nothing here specially "fixed up" for exhibition. Everything is just as it is kept for sale in their storehouses. We advise Canadian farmers to send for a descriptive catalogue of what this firm manufacture. The Doe plough is made by Whittemore, Belcher & Co., Chicopee Falls, Mass. Collins & Co., of Hartford, Ct., show some very nice cast steel ploughs. All the standard reapers and mowers are here, and among them the actual machine exhibited by Woods at the Paris Exposition, a very highly finished and sweetly working machine. A large and fine assortment of "Clipper" mowers and reapers is shown. We observed nothing new in this department, and do not expect to do so, until some one invents a binding attachment, which we are sanguine enough to believe will yet be achieved. There are plenty of horse-rakes, the only novelty being "Howard's Carriage Revolving Horse Hay Rake," very much the old style of thing, with wheels attached so that the driver may ride. It is exhibited by S. S. Westbrook, of Kingston, Ulster Co., N. Y. Several styles of hay tedders are shown, and this valuable instrument is evidently growing in favour among American farmers. Webb's improved horse-hoe, made by Dunham & Carrier, of Bangor, Maine, looks like an effective means of saving hand labour. Horse-hay forks are not so conspicuous as they usually are at these exhibitions. The harpoon fork is the only one that caught our eye. Feed cutters are in great variety, among them one which is a revival of the old lever style of thing, but the arm is all of iron, so giving a heavy down stroke. It is cheap, and said to be effective. Certainly there is no machinery to go out of order. Whittemore, Belcher & Co., before named, show this feed cutter, with many more of costlier make. The "Union Horse Power," exhibited by Ames Plow Co., is a very simple, easily-worked, and efficient tread power, on a much more gradual incline than machines of that kind generally are, thus rendering it less toilsome to the animals put on it. Seed-sowers and wheel hoes are shown by Whittemore, Belcher & Co., and others. A new style of farm dumpling waggon is exhibited by the "Dump Waggon Co.," of East Highgate, Vt. It is the best thing of the kind we have seen, and we have inspected several. We shall try to give an illustrated account of this contrivance in a future number, as it is very simple, and capable of being adapted to any ordinary farm waggon. Two novel styles of hand-hoe are shown, one "the adjustable hoe," so arranged that it can be set at different angles to the handle, and the other, "Allen's patent weeding hoe," with a double-edged blade of large saw teeth, said to be "death to weeds." Two inventors exhibit adjustable carriage poles. We prefer the one manufactured by "The Bishop Adjustable Pole Co.," New Haven, Ct. It is strong and well braced, graceful in appearance, and easily fitted to any single or double carriage or cutter. An excellent cattle-tie and ox-bow fastener are shown by an agent of the "Stanley Works," New Britain, Ct.

MISCELLANEOUS.

Dairy requisites have scarcely a place in the exhibition, and churns, which are usually quite a feature at these shows, are conspicuous only by their absence. There is, however, an improvement of the old churn-dash which we think well of. The patent embraces "the hollow-plunger principle," and the "pyramidical, cone, dome, and hat-shape," from which our readers may, perhaps, glean some idea of it. "The Patent Churn-dash Co." of Hartford, Ct., sell it. An invention of some importance to factory dairymen is exhibited. It is "Peck's Milk Cooler," intended to take the animal heat out of milk as quickly as possible. It consists of a coil of zinc or rather metallic tubing, in a sort of half-barrel tub containing ice water. The milk is passed through the tubing, and the thermometer proved that the animal heat is rapidly and completely removed by this process. Fowler & Barnes, of Northford, Ct., sell this machine. We commend it to the notice of Canadian dairymen, as the simplest and best contrivance for the purpose which we have met with. Several descriptions of farm gates are shown, but there is nothing particularly new in this line. Fruit baskets in great variety are exhibited; among them we like best the veneer fruit basket, made by "The Beecher Basket Co.," of Westville, Ct. Nice grape-packing boxes and crates are shown by the "American Basket Co.," New Britain, Ct. "The Atlantic Water Elevator" is a great improvement on the well-known chain pump, by which the tubing is dispensed with, and the water brought up in small galvanized iron buckets, which alternate with long links in the endless chain. A. Austin, Norwalk, Ct., is the maker of this elevator. J. Harris & Son, 76 Kingston St., Boston, exhibit beautiful gilt weather vanes in great variety, suitable for barns, churches, and other public buildings. A patent grapple with a holder, which can instantly, and without a ladder, be attached to a beam or rafter for elevating purposes, is shown by Hawley, McClure & Co., Utica, N. Y. Galvanized iron trellises, neat, light, and pretty, for garden use, are exhibited by W. W. Wilcox, Middletown, Ct. All carriage-makers, and everybody who, owning a wheeled vehicle, would have it run without noise and excessive play at the wheels, will do well to make a note as follows: "Raw Hide Washers, for sale by the Darrow Manufacturing Co., Bristol, Ct." They are the very thing; cheap, solid, absorbing oil enough to lubricate them sufficiently, and yet not softening as ordinary leather ones do. They are made all sizes, from that of the smallest buggy axle to three and a-half inches outside diameter, and cost from $2 to $4 per gross, American currency. The same company make untanned leather doll heads, that look as nice as wax and will bear any amount of knocking about by rumbustical babies. Housewives, attention! here are a few items worthy your notice. A suspension egg-carrier for sending eggs to market, or keeping them at home—each egg being suspended by itself in a little calico bag. We, unfortunately, omitted to make a note where this contrivance is to be had. "Excelsior bread and meat cutter," which cuts a round of bread, cake, or beef-steak, smoothly and of uniform thickness, with mathematical precision. Sold by Corbin and Tarbell, Worcester, Mass. A patent mincing knife, which gives not only the guillotine stroke, but the drawing stroke. This is a very nice kitchen tool, price $1.50, and made by Ketchum & Lond, Winchendon, Mass. A more costly affair for larger mincing and chopping operations is made by the "Athol Machine Co." Athol, Mass. "Davis' Patent three minute Cake Mixer" is advertised as "the last sensation." For confectioners, hotels, and large families, it would be very valuable. It is sold by J. H. Rowland & Co., No. 192, State St., New Haven, Ct., and costs from $3 to $5, according to size. The "Common Sense Nutmeg Grater" prevents rasped fingers and waste of nutmegs. It may be had of T. Smith, Jr., 63 Union St., Boston. "Russel's Patent Fruit Seeder" takes the stones out of cherries and the seed out of grapes instanter. Made by Dow & Sprague, Birmingham, Ct., price $1.50. A new peach paring machine, which will pare potatoes to a charm, is shown by D. H. Whittemore, Worcester, Mass., price $10 per dozen. "Jeffrey's Reversible Griddle" is a very ingenious contrivance for turning batter cakes to a dead certainty "as you like it." Address E. A. Jeffrey, Trappe, Talbot Co., Md. Leaving the kitchen and going out of doors, we would call the attention of quarrymen and stone-masons to the "Little Giant Stone Drilling Machine," which drills away at granite very much as a wood-boring machine would do at an oak log. It is to be had of Herrmango & Ostrander, Schuylerville, Saratoga Co., N. Y. Blacksmiths would do well to examine "Stephens' Parallel Vice," sold by Messrs. Stephens 91 Liberty St., New York.

In closing this detail, we may add that there is no show of grain, seeds, roots or vegetables; the display of fruit is meagre; the exhibition of flowers no way remarkable; there are no bee-men lecturing on hives and bee-charms; and no dairy products are to be seen. An address by Dr. Loring, President of the Society, and two evening discussions, one on the "Breeding of Cattle," and the other on "Farming as a Business," were interesting and instructive, but we must not attempt even the briefest synopsis of them.

Stray Notes of Travel in the United States.

[EDITORIAL CORRESPONDENCE.]

New York, Sept. 8, 1868.

Our former communication closed with some account of that rural glory of New York, Central Park, and as the subject was by no means exhausted, it may not be amiss to resume it, so far at least as to make a few remarks on parks and avennes in general. It is said that a Park-making *furore* prevails all over this country at this time. 'Tis well. Worse *furores* might prevail. May this one cross the lines and have a powerful run in Canada! It is much needed. Our towns and cities might have rare sylvan beauty very easily, if our people would only take some little trouble in the matter. The chief feature in parks and avenues is trees, and this can readily be secured. If every owner of a village, town, or city lot would but plant trees in front of his property, how soon would there be "beauty all around." Brooklyn is vieing with New York in park-making. Prospect Park in Brooklyn tries to rival Central Park in New York; but while very beautiful, and scarcely less extensive, it lacks some natural advantages possessed by Central Park. But Brooklyn certainly beats New York in the matter of avenues. New York has nothing that approaches Clinton Avenue in Brooklyn. It is a gem of rural beauty; broad, with spacious flag-stone walks; wide, well-kept grass borders; and rows of magnificent trees. On either side, well back from the front fence, are palatial mansions, with flower gardens, conservatories, and shrubberies about them. Here dwell merchant princes and millionaires, but the poorest individual in the city can walk beneath these majestic trees, and feast on all this floral and herbaceous loveliness. At the present time, a flowering shrub, almost attaining tree proportions, and commonly known as the "Rose of Sharon," is in full bloom, and very beautiful it is. The flowers are large, bell-shaped, and of various colours, not unlike the hollyhock, and like it both single and double. There is also a magnificent white lily, with large, long trumpet-shaped flowers, in full bloom, which is a very showy, attractive object in these gardens. Creepers are largely grown, tropœolums and the cypress vine seeming to be favourites. Ivy may be seen creeping up some of the buildings, as though it wintered out of doors here. No doubt the near vicinage of the ocean modifies the climate considerably, and enables things to be grown which cannot be cultivated out of doors on the same parallel of latitude inland.

Large numbers of goats are kept in the suburbs of New York and Brooklyn, mainly for their milk, though they are driven in children's carriages, making a very pretty appearance, while not a few, owned by the poor, draw carts laden with swill and offal. It is said that an enterprising individual is going to start a "goat livery" close to Central Park, and hire out goat carriages for children to take drives in. We are satisfied, after experimenting for three years with them, that goats are well worthy of being kept for milking purposes. If goats of good milch stock are obtained, their yield of milk is by no means inconsiderable in quantity, while its quality is so rich that it may be diluted one-third with water, and still be equal to cow's milk. For invalids and delicate children, goats' milk is invaluable, as it possesses some peculiarly nutritious quality, desiderated by such as are low in vitality.

The office of the *American Agriculturist*, now removed to larger quarters on the opposite side of the City Hall Park to that on which it used to be located, is well worth visiting. The premises are very extensive, and divided into departmental offices. Besides the business of the paper, the circulation of which is something fabulous, a large trade is done here in agricultural and horticultural publications. Messrs. Orange, Judd, & Co., the proprietors of the *Agriculturist*, publish largely themselves this class of books, and also keep in stock the issues of other houses in the same line. So many works of this description are now extant, that an extensive and costly farmer's library can readily be made up of them. The second story of the *Agriculturist* building is occupied by Messrs. Whitlock & Co., as a general Horticultural Agency. Here a free fruit and flower show is constantly going on, and every Thursday afternoon a horticultural meeting is held for the discussion of questions interesting to professional and amateur gardeners. The discussion is preceded by the reading of a paper on some subject previously chosen. We attended one of these discussions. A paper on "The Profits of Fruit-growing" was read by Mr. A. S. Fuller, author of a little work on "Small Fruit Culture." A well sustained discussion followed. Fruit culture seems to be one of the topics of the day here. Many persons have gone into what is called fruit-farming, and find it pay well. There is almost unlimited market here for fruit. The more fruit is raised, the more the demand increases. In our former communication we spoke of Bartlett pears bringing ten cents each. We have since seen them sell at twice that price; and at the discussion above referred to, it was incidentally mentioned that any quantity can be sold in Boston at twenty-five cents apiece. No such prices could be got in Toronto or Montreal. Canadians are a beef-eating, and Americans a fruit-eating people. Market gardening and fruit-growing are by no means money-making businesses in Canada. The reverse is true here. In the vicinity of all the larger American cities, there are numbers of people who are getting rich by raising vegetables and fruit for the markets.

An enterprising company, the head of which is Mr. S. N. Pike, proprietor of "Pike's Opera House" in this city, have undertaken the reclamation of extensive flats just across the North River from New York, and in the adjacent State of New Jersey. These flats comprising several thousand acres, have been hitherto wet and marshy, yielding only a very coarse description of hay, and therefore, were considered of very little value. The tract has been purchased by the "Iron Dyke Company," as it is termed, at a very low figure. It is being protected from the river by a levee or dyke, which consists partly of dirt, and partly of a continuous plate of iron. This contrivance prevents leaks in the dyke being occasioned by the operations of moles, muskrats, &c., and affords great support to the mound of earth. The dyking is to keep out the tide water; the ordinary height of the river is below the level of the land. When the dyking is finished, it is intended to dry the land by cutting ditches, guarded at the outlets by sluices which can be shut at high tide and opened at low tide. A portion of the tract is already finished, and has been cultivated the present season, and it is expected that there will be 1000 acres ready for tillage by next spring. It is the intention of the proprietors to lease this land,—which they can do at $100 an acre. The soil proves very rich, and well adapted to gardening purposes, to which it is expected the whole area will be devoted when it is ready for use. The cost of these improvements will not bring the outlay on the land higher than $150 or $200 an acre, and already the company has been offered $500 per acre for portions of it. This is what Americans call a "big thing." It is so in more senses than one. It will add considerably to the market-gardening capabilities of the region adjacent to this great city, promote the healthfulness of the city and environs, lessen the number of mosquitoes, which are very numerous and savage, as we know to our sorrow, and bring a golden stream of wealth to the coffers of the fortunate individuals concerned in the enterprise. Moreover, it will lead to similar undertakings in the vicinage of other large cities, and will bestow on them like benefits.

We spent an entire afternoon in that most beautiful city of the dead, "Greenwood Cemetery." To do this noted spot anything like justice, we must devote a whole article to it some time. At present we find it necessary, much against our will, to dismiss it with a paragraph. Nature and art have united here to ameliorate the repulsiveness of death and the grave with wonderful success. It is difficult to realize that it is a burial place, for you feel continually that you are in a lovely park crowded with statuary. The ground is full of natural undulations, which have been turned to the best account by skilful landscape gardening, and so there are hills and vales, mounds, nooks, dells and sequestered places, with carriage-drives and foot-paths gracefully winding in all directions. Every spot partitioned by roads or walks is named, as are all the avenues, alleys, and paths, each having its designation very neatly shown on a small guide board, supported on an iron pedestal or stand. Deciduous and evergreen trees in every style of leafy beauty adorn these grounds, and make them far more a scene of life than of death. Many of the monuments are exquisitely chaste and elegant. Massachussetts and Aberdeen granite marvellously polished, marble of every description, and stones in such variety as might puzzle a geologist, are here, built into mausoleums, sculptured into stone pictures of the dead, read in lofty columns, or employed as humble and simple memorial tablets. Several might be enumerated were we giving a detailed account of Greenwood; suffice it to say that, of all we saw, nothing so thoroughly pleased us as a costly yet simple structure in white marble, recently erected by James Gordon Bennet, of the *New York Herald*. It stands beside three child graves, and the subject is a mother in modern attire, the sculpture showing the silk finish of her dress and the very figuring on her lace shawl, lingering at the spot, and looking cheerfully upward as three cherub forms ascend heavenward. The entire conception and execution form a master-piece for a Christian burial place.

The main entrance to Greenwood Cemetery consists of a very noble gateway, embracing a series of arches, having over them, in bas relief, Scripture scenes, such as the "Raising of Lazarus," &c. As you ascend the hill from the main entrance you have a fine view of the river, shipping, New York, &c., and farther on in the grounds you get very beautiful glimpses of these objects. In one place, called "Ocean Hill," you behold in the distance a very charming sea-view.

Much too hurriedly we must make a brief note of a visit to the farm of Rev. Henry Ward Beecher, at Peekskill, N. Y. We spent an afternoon there very pleasantly in the society of the gifted proprietor and his interesting family. Mr. Beecher's farm consists of thirty-six acres, having a narrow frontage, and sloping up a considerable distance from the stretch of table land below, so that it commands a fine panoramic view of the picturesque region about Peekskill, and takes into the scenery a beautiful sweep of the Hudson river. The buildings consist of the original farm house, somewhat improved since it came into Mr. Beecher's possession, and forming a comfortable but unpretentious family residence, and a large, handsome barn, roofed with variegated slates, and evincing the taste at once of the architect and owner. Mr. Beecher cultivates his domain in the meantime as a vegetable and fruit farm, and it reflects no small credit on his management that last year the sales off it amounted to $3,600. An average of $100 per acre. *Per contra* must be reckoned the wages of seven men during the working season, outlay for manure, team expenses, &c. Mr. Beecher is a better and more practical farmer than we expected to find him. He understands the theory and principles of agriculture thoroughly, and is making intelligent application of them on his little estate, which he is managing not so much for the sake of present profit, as with an eye to making a pleasant home when he retires from active ministerial duties. Most of his land has been thoroughly stirred to the depth of fifteen inches. It is thoroughly enriched with barnyard and artificial manures. Apple, pear, plum, and peach orchards are planted, and a large vineyard set out. These are protected by evergreen screens and hedges, or rather will be when the young trees become large enough. Shade and ornamental trees are growing up to adorn a spot which already possesses extraordinary attractions, and will be a delightful place when the owner's plans are carried out. Mr. Beecher has large plantations of strawberries, raspberries and blackberries; grows early potatoes, lima beans, melons, "ruta bagas," and sweet corn extensively, and has not only a bright and beautiful array of flower-beds close to his house, but seems to grow them promiscuously all over his farm. A good-sized patch of "ruta bagas" (or Swede turnips, as we should call them,) is fringed with three rows of dwarf asters which are just coming into profuse bloom. Mr. Beecher is passionately fond of flowers, and likes to have them wherever he is, even in the pulpit. We were glad to learn from him that his example of high farming is doing his neighbours good, and that a perceptible improvement has taken place, since his advent, in the style of husbandry about Peekskill. Such will always be the effect of growing uniformly good crops through the combined application of liberal manure and skilled labour.

Distress in Red River.

In consequence of the ravages of grasshoppers, the North-west Territory of Red River is almost destitute of crops, and serious apprehensions are entertained in regard to the food supply for the coming winter. The *Nor' Wester* contains an appeal for help to friends in England, Canada, and the United States. We feel assured that this call upon the sympathy and benevolence of those who have during the present year received in such large measure the bounty of Providence will not be made in vain. Meetings have already been held in Toronto, Hamilton, and other cities of this Province, to take the subject into consideration, and active measures are being taken to raise funds to relieve as promptly as possible the wants of the sufferers by this great calamity. In former years the abundance of buffaloes in the territory has mitigated the effects of any scarcity in the crops; but in consequence of the dispersion of these wild herds, resulting from the increasing occupation and settlement of the land, this source of relief is now cut off. We heartily commend the case of our fellow-countrymen to the good feeling and liberality of the farmers of Canada.

Literary Notices.

The American Entomologist.

Edited by Messrs. Benj. D. Walsh, Rock Island, Ill., and C. V. Riley, St. Louis, Mo.; published monthly by R. P. Studley & Co., No. 104 Olive Street, St. Louis, Mo. No. I, September, 1868. Price, $1 per annum.

We gladly welcome the revival, in another form, of that most useful periodical, the *Practical Entomologist*, whose untimely demise we lamented not long ago. The present undertaking, though similar in its objects, is now being carried on under the auspices of no society, but entirely as a business enterprise, by business men, and upon a business footing. With two such men for editors as the State Entomologists of Illinois and Missouri, who have been well known to the scientific world for their writings and investigations, and to the agricultural world for their practical work, the one in the periodical above mentioned, the other in the *Prairie Farmer*, we do not doubt that the proprietors will find their enterprise a successful one, while the farmers and gardeners of the continent will glean from its pages information that will save their pockets, collectively, many thousands of dollars per annum. The first number, which is now before us, consists of twenty large octavo double-column pages, well and clearly printed, and illustrated with nine wood-cuts from the pencil of the junior editor. All the numbers are to be well illustrated, and it is the intention of the publishers to furnish at least one coloured lithographic plate in addition with each volume. The contents of the present number are varied and interesting, and written in an easy and lively style; the first article, which is of an introductory character, proves most conclusively the need of such a journal, and the importance to all of the practical study of the nature and habits of insects. The following sentences, which, considering the devastation of such a wide extent of western country by locusts this year, (witness the appeal for aid from the Red River Settlement.) we do not believe to be exaggerated, are sufficient of themselves to prove this:—"We are certainly speaking within bounds when we assert that, taking one year with another, the United States suffer from the depredations of noxious insects, to the amount of THREE HUNDRED MILLIONS OF DOLLARS. We by no means maintain that it is possible by preventive measures to save the nation the whole of this gigantic sum; but we do contend and firmly believe that it is perfectly practicable, by long-continued observation and careful experiment, to save a considerable percentage of this enormous sum total. It may, and probably will, take many, many years of hard work in the field, and anxious deliberation in the closet, to arrive at such a result; but in the meantime every step that is gained in advance will be so much money saved to the community. Suppose, for example, that during the next two or three years preventive measures should be discovered by which the total annual damage inflicted by insects is diminished only to the amount of one-half of one per cent. Then, according to the data above given, the nation will gain annually, for all time, to the amount of ONE MILLION AND A HALF DOLLARS!"

We are requested to state that, as before, in the case of the *Practical Entomologist*, persons in Canada desirous of obtaining the *American Entomologist* can procure it, postage free, on remitting one dollar to the Rev. C. J. S. Bethune, Secretary to the Entomological Society of Canada; the difference in exchange pays both the American and Canadian postage.

INDIAN CORN—Its value, culture, and uses, by Edward Enfield, published by Appleton & Co., New York.—This is a complete and highly practical treatise on the culture of Indian corn. This important grain is not grown in Canada to the extent to which we believe it might be with advantage and profit. The soil and climate in certain sections of the country are well adapted for this noble cereal, and we hope to see it more extensively cultivated by Canadian farmers. We commend the above work to their attention. The subject is treated concisely, yet very fully, the following being the principal topics successfully treated: Varieties; adaptation of varieties to soil and climate; average yield and productiveness; selection and preparation of seed; planting, after cultivation, harvesting, and storing; enemies and diseases; stalks and leaves as fodder; and finally, its various uses and economical value. The agents for the sale of the work in Canada are Messrs. Adam, Stevenson & Co., Toronto.

THE COUNTRY GENTLEMAN'S MAGAZINE.—We have received, from England, the first number of this new monthly periodical. It is a handsome magazine, octavo size, beautifully printed, with clear and large type, and containing 180 pages of valuable and interesting matter. With this is incorporated the *Journal of Agriculture*, an old established magazine of the highest standing. Most of the articles are reprints from the *Farmer*, (Scottish), a very convenient way of preserving in suitable form the most important and permanently useful matter of that foremost in the rank of British Agricultural journals. The letter-press is illustrated with well-executed engravings, and the whole would form, at the end of the year, a goodly volume of agricultural literature.

WHITLOCK'S HORTICULTURAL RECORDER.—The August number (No. 2, vol. 2) of this publication is full of valuable information on horticultural matters. There is appended a prospectus and catalogue of the "Perpetual Exhibition, or Agricultural Bazaar," referred to in our Editorial notice of the establishment of the *American Agriculturist*.

ELLWANGER AND BARRY'S DESCRIPTIVE CATALOGUE OF FRUIT.—This catalogue, just received from the proprietors of the Mount Hope Nurseries, Rochester, New York, contains, as usual, a very full list of fruits adapted for the United States, and most of them are well suited for our Canadian climate.

O'KEEFE & SON'S CATALOGUE.—We have also received from M. O'Keefe & Son, of Rochester, a Catalogue of Fruit Plants and of Dutch Bulbous Flower Roots—complete and excellent lists.

Agricultural Intelligence.

Agriculture in Scotland.

HILL FARMING—BALMORAL—TREE PLANTING—TURNIP CULTURE—LOWLAND FARMS, &C.

To the Editor of THE CANADA FARMER:

SIR,—I wrote you last from Aberdeen, immediately after the exhibition; since then I have enjoyed the opportunity of seeing a large portion of Scotland, and of having much personal intercourse with farmers and others engaged in the various industrial pursuits of life. I have attended several markets, fairs and local shows, affording me the means of much valuable information, and also of imparting information respecting the resources, &c., of Canada, in which I found great interest manifested in several localities.

"Hill-farming," as it is termed in the more mountainous districts of Scotland, presents many points of interest to a lowlander or stranger. The extent of such farms is often estimated by the amount of cattle and sheep they will maintain, and not by the number of acres they contain. In some parts of the Highlands it requires two or three acres to keep a sheep all the year round, and it is surprising to find how large an area one shepherd, assisted by his wonderfully sagacious dog, can manage to superintend. These dogs, which are generally well trained, are indispensable among these hills and rugged precipices in the management of sheep, and are in fact of much greater service for such purposes than men. In fine weather sheep-farming in the Highlands is a very pleasant and healthy occupation, but like most other pursuits it has its dark side; the rain and snow storms common to these regions at certain seasons, render the shepherd life one of much anxiety, and sometimes even of privation and hardship. In extreme cold and boisterous weather the sheep are collected in the lower grounds, and temporary protection afforded them, and, perhaps, a little hay, turnips, &c., given them; but as a general rule, they have to forage for themselves all the year round, and, with proper attention, it is surprising how well they do. The black-faced or heather sheep is the breed that universally prevails through all the higher districts. They are beautiful-looking animals, horned, the males most gracefully so, extremely hardy, slow growers, and yield the best mutton in the world. They subsist on the coarse grasses and heather of the hills, and the flavor of their flesh is peculiarly savoury, with an exquisitely short and tender fibre, when kept for a few days. I more than once partook of mutton from four years old wethers, by far the finest I ever tasted in my life; much superior to the Southdown, and even to the Welsh mountain breeds. This high degree of excellence, I was informed, could only be attained in animals fully matured by age; a rule that obtains in other of the domestic animals besides mountain sheep. The West Highland cattle are beautiful little creatures, and their beef is of very superior quality, fetching, with the mutton, a higher price to the extent of a penny or more a pound than the larger and coarser breeds, in the London and other English markets.

In the Western Highlands, where the climate is excessively humid, and sheep suffer more from wet than cold, the practice of surface draining the slopes of the hills has been introduced with very salutary results. Small furrows are made by the plough or spade, according to the inclination of the undulating surface, so as to give the water that falls in showers a more ready exit into the lower or natural channels of drainage. This is found to render the surface drier and warmer, to induce the growth of grass of a better quality, and prevent, or at all events mitigate the foot rot. It is a common practice to set fire to the heather when it gets old and scrubby, thus inducing a new growth, which is much coveted by sheep. In some of the lower slopes I learnt that the application of quick lime had been found most beneficial to the natural pastures, sweetening and improving the herbage, both as to quantity and quality, in a high degree.

Your readers will form an idea of the extremely small area capable of cultivation in some parts of the Highlands, when I state, that on Her Majesty's estate of Balmoral, consisting of upwards of 20,000 acres, I was informed that scarcely 500 admitted of any kind of cultivation. Besides the rather extensive ornamental plantations immediately around the castle and the adjoining permanent pasture, I observed only a few acres of oats and turnips, both of which were suffering much from the effects of drought on a thin gravelly soil. The dairy consists of eighteen cows, of the Ayrshire breed, which I did not see, as they were in the woods, for want of grass in the pastures. The dairywoman, as well as her husband, was very intelligent, and quite disposed to afford me any information. The dairy is a small, but very suitable building, rather elegantly fitted up, but all its parts quite in keeping with the object it has to serve. There is no kitchen or fruit garden of any consequence at Balmoral, the soil and climate being naturally unsuited to such purposes.

In these higher districts only a little rye, oats, and barley are grown, and even these crops are in some seasons quite uncertain. Wheat is never attempted. Potatoes and turnips do pretty well. Hay is the most important crop, and is produced of pretty fair quality in the narrow valleys. As an instance of the peculiar character of the present season, I may observe that I saw oats and barley nearly ready to cut in the middle of August, full six weeks before the ordinary time. Indeed there are in most years portions of grain crops standing in the more exposed situations, after snow has commenced falling. One farmer told me he did not harvest his small quantity of grain in good condition more than one year in four, and that he looked more to the straw than to the grain.

Having heard and read much about the planting of the Highlands with fir, larch, &c., with a view to shelter and profit, I must confess to a feeling of disappointment on the first view. The trees on the higher elevations presented a scrubby and unthrifty appearance, but in lower situations, where the soil is better and shelter obtained, the conditions are more favourable, and in most localities artificial planting can be, no doubt, carried on with success and profit. The planting of wood very much enriches the landscape, and improves the climate, rendering the country more comfortable and salubrious for both man and beast. On the extensive estates of the Duke of Athol many thousands of acres were planted with the larch fir principally, more than half a century ago. Many of these woods appear to be in a thriving condition, and large quantities of excellent timber have already been taken from them; while there are others I thought in an almost non-progressive state. I was told that of late years a worm had been doing considerable mischief, and that several acres of trees, in some places, had actually died. No antidote has yet been discovered.

Scotland presents most remarkable illustrations of the connection between the physical conformation of a country and the industrial pursuits of its people. The Highlands proper, are by soil and climate for ever destined to the pasturage of hardy sheep and cattle, and can only support but a very sparse population; while the lower and richer grounds of the South, including portions of the East, abounding in some localities with coal and iron, afford the means of ample support to large numbers of people busily engaged in the various industrial pursuits of agriculture, manufactures and commerce. In travelling over the country one is struck with the ever varying face of nature, and is forcibly reminded how much the composition and productions of the soil, and the nature of the pursuits of the people in the present day, are the results of physical forces operating on the crust of the earth through long ages of the mysterious past.

I had the pleasure of spending two or three days in the County of Fife, principally with Mr. Robert Russell and friends, near Leven. Mr. Russell, some years ago, spent several months in the United States and Canada, and published the best book for practical purposes ever written, perhaps, on America. I had a beautiful drive through a portion of the eastern section of the county along the coast, where there are some excellent specimens of farming. The soil is generally good, in some places very rich, fetching high rents,—say from £2 10s, to £4 per acre. Most of the grain was cut, and the yield of wheat estimated at from forty to sixty-five bushels an imperial acre. Spring grain was, in consequence of the drought, under an average, the same of root crops, though I found turnips in Scotland much better than in England, particularly the south, where they are generally all but an absolute failure. The present season affords a very useful lesson in regard to turnip culture; clearly demonstrating that the *mechanical* condition of the soil is of the utmost importance. Much of the arable land of Scotland is warm and friable, formed by the disintegration of the primitive rocks, and, with the climate, naturally adapted to turnip culture. But even here turnips appeared patchy in fields where the texture of the soil, and consequently the cultivation, was not uniform; while upon the heavier soils of many parts of England a sufficiently fine and deep tilth could not be obtained, and the consequence was that during the severe drought the seed never germinated. The showers that have recently fallen have, however, caused germination to commence,—but too late to produce a crop. On soils that are friable and well worked, a fair crop of Swedes will probably be produced. Farmers who fail to grow turnips on unsuitable or badly prepared soils, are apt to attribute the result to bad seed, rather than to their own neglect or want of judgment. Mangel-wurtzel is but little cultivated in Scotland, the average heat of the growing season not being generally high enough to develop sufficiently its saccharine quality.

I felt greatly disappointed in not finding Mr. George Hope, of Fenton Barns, at home, having anticipated much pleasure in some personal intercourse with so distinguished an agriculturist. I went over the farm, however, with his reeve, Mr. Bertram, a thorough agriculturist of the practical school, who was disposed to give readily any information required. Mr. Bertram has three sons settled in Ontario, and has visited the Province himself, and thinks highly of its condition and capabilities. Mr. Hope farms about 1,000 acres, and no one can give even a cursory glance, without being convinced that the operations of this fine and extensive farm are conducted on the most approved principles of improved husbandry. The soil is among the best in East Lothian, a district renowned for its great productiveness. The farm has been in the same family for two or three generations, and very important permanent improvements have been made, from time to time, by way of draining, straightening fences, &c. A steam plough with cultivating apparatus has been introduced with the most satisfactory results, diminishing horse-power more than fifty per cent., and ensuring an early and well prepared seed-bed. The wheat crop was very heavy, all cut and ready for stacking, but the recent heavy rains had retarded progress,—sprouting even had actually in some places commenced. The period was critical, and farmers were looking to the immediate future with considerable anxiety. Mr. Hope keeps a first-rate Shorthorn bull, which serves selected cows, in most of which the same blood predominates, producing stock of rapid growth and large size, profitably adapted to the butcher. There are on the farm some excellent pure bred Leicester sheep; but half-breeds, that is, a crop between the Leicester, Cheviot, Lincoln, or some other sort, predominate in this and other districts of the Lowlands. In travelling through this fine section of country one is struck with the novel appearance of a tall chimney in almost every farm steading, the motive power in threshing, cutting straw, &c., being generally steam. Mowing and reaping are principally done by machines, as is now the case in many parts of England. Samuelson's reapers, with self-raking and delivery apparatus, appear to be the most generally used. Some of your readers may not be aware that the original inventor of the reaping machine is a Scotch clergyman, still living; but Mr. Bell's machine, which is propelled by horses from behind, though it does excellent work, is of heavy draught and but little used. The members of the Highland Society, and others, recently presented Mr. Bell with a testimonial, consisting of one thousand pounds, as a mark of respect for his character and the great worth of his invention. I believe this gentleman resided in Canada for a while, many years ago, as tutor in the family of the late Hon. Adam Fergusson, of Woodhill.

In looking back on the history of British agriculture in the present century, there can be no doubt that the formation of the Highland Society was an important starting point in the process of the art; and that the exhibitions and proceedings of that, which may in strict truth be termed the *parent* society, have exercised a most beneficial influence on British agriculture, and that of the numerous colonies and settlements in connection with the mother country. I left Scotland with regret, my time being far too limited, and with a deep sense of the intelligence and character of the people.

As one travels from north to south, even if it be but three or four hundred miles, a marked difference obtains in the time of performing the more important operations of the farm. When I left Scotland the farmers were in the midst of harvest—very little had been secured; but on reaching the great central plain of Yorkshire, only here and there a late sown field had the grain uncut, and in the south and south-west the crops had been secured for nearly or quite a fortnight, and in capital condition. But little threshing has yet been done, and from all I can learn where that decisive test has been applied, the wheat crop promises to turn out abundant—considerably, I should think, above an average. I have met with a few instances of the threshing not fully coming up to previous expectations; these, however, will probably prove exceptions, not the rule. Spring grain on good soils, with a fine, deep tilth, will afford a fair yield; but all late sowings with indifferent culture, cases by no means rare, will be very deficient, or an absolute failure. The recent rains have already produced a marked change in the appearance of the pastures, which only a few days since were as brown and bare as a turnpike road; they are now assuming a beautiful green—grass is beginning to grow, and farmers have a prospect of abundance of keep through the autumn. This will have a desirable effect on the price of sheep and cattle, which of late have been much depressed in value. I hear but an indifferent account of the state of the hop plantations, many of which have rapidly gone off during the past few weeks; but as I expect to be in the south in the course of a few days, I will defer further remarks till I have had the opportunity of personal observation.

GEO. BUCKLAND.

Peterborough, August 26, 1868.

FALL SHOWS.—The Fall Show of the East Elgin Agricultural Society will be held at St. Thomas, on Tuesday, the 6th of October.

☞ A joint Show of the West Riding of York and Township of Vaughan Agricultural Societies will be held at Burswick, on the 20th and 21st of October. As an inducement to the sons of farmers, they offer $12 for the first, and $8 for the second-best essay upon "Practical Farming," to be the composition of a resident of the County, practically engaged in agriculture, and under twenty-one years of age; the essays to be forwarded to the Secretary on or before the 15th of October next, the essay to become the property of the Society.

☞ Hay is being exported from Montreal for the English market.

☞ Upwards of 4,000 sheep infected with small-pox, or sheep pox, have been received in England from the continent; in consequence of which, an Order in Council has been passed providing for the inspection and quarantine of all foreign sheep before admitting them into the English market.

WHEAT PREMIUMS.—Messrs. Moore, Foote & Co., of Detroit, have offered the Michigan State Agricultural Society the sum of $400, to be given in premiums, for the best fields of white winter wheat grown in Michigan. The Society have accepted the donation, and announce three prizes, of the sums of $250, $100, and $50 respectively, for the three best fields, consisting of five acres each, of white winter wheat, sown this fall, and harvested in 1869.

BREEDING HORSES IN AUSTRALIA.—Two Australian horses, "Fish Hook" and "Marchioness," were sold during the week ending 23rd of May last, to Mr. Hunter, who buys for the India Market, the price being for the two £1,500 sterling—upwards of $7,000. The services of a favorite horse, "Ace of Clubs," son of "Stockwell," are advertised at twenty sovereigns. A race-horse breeder and turf man, D. L. S. Smith, is just disposing of his farm of one hundred and thirty-six acres, and thirty head of horses, mares, and colts, by lottery, at £5 sterling per share in 1,000 shares.

NEW YORK GRAPE GROWERS' ASSOCIATION.—ANNUAL FAIR.—The first annual exhibition of the New York Grape Grower's Association will take place at Canandaigua on the 7th and 8th of October. The exhibition will comprehend the Grape, its products and the implements which pertain to its culture, gathering, preparation for market, and manufacture into wine or brandy. Grape growers and manufacturers of wines, brandies and implements, from all parts of the Union and the British Provinces, are invited to become exhibitors and competitors. There will be a meeting on the evening of the first day of the Fair, during which the following subjects will be discussed: 1. Soils, and their preparation for planting. 2. Varieties, and their adaptation to soils and localities. 3. Pruning, and the season in which it should be done. 4. Best mode of trellising. 5. Over-cropping, and its consequences. 6. Renovation of worn-out vineyards. 7. Marketing. 8. The benefits of the grape and its products on the health of the people.

The Apiary.

The Koehler Secret Revealed—A New Mode of Propagating Ligurians.

Mr. Koehler has recently made his process public in the following article, which appeared in the *German Bee Journal*:—

Now as to the operation itself. It is founded on my observation, that during many fine forenoons and afternoons the air is still warm enough for queens to fly ont when drones usually have not commenced flying, or have ceased to take wing. Until, therefore, the young queens become fertilised we must compel the Italian queens and drones to go forth at such times as the German drones cannot possibly be abroad. The time during which drones are on the wing seldom extends with us to later than 4 or 5 o'clock P.M. If, therefore, we have one or more colonies, with young queens which we know to a certainty have not yet been fertilised, we place these hives for three, four, or five days in a perfectly dark and cool cellar, and with them also the stock which contains the Italian drones. Whenever a very warm and sunny day occurs, we watch the German stocks until the drones have ceased their flight. As soon as this occurs we restore the hives containing the Italian queens and drones to their accustomed stands, and set them at liberty after giving to each a copful of their liquid honey. The queen and drones being ardent, and having been unable to fly for days, the bees excited by the honey and their previous confinement, become so eager after flight, that all play as if mad, and fertilisation follows. We must, however, be careful to return to the cellar in the evening every colony the queen of which has not been seen to return with the sign of fertilisation, and repeat the process until it is certain that the desired result has been attained. This is essential, because it is well known that under ordinary circumstances some queens take flight several times before they succeed in meeting with a drone. How much more, therefore, must this be the case under the foregoing management, whereby the number of available drones is limited to those only which exist in the few Italian stocks?

But now I will make a second communication, which will certainly also be agreeable to you. I do not know whether you give the preference to natural or to artificial swarms. My practice combines both, as by it I obtain natural swarms by an artificial process, and can at the same time with one good Ligurian stock Italianize a dozen colonies with the least possible trouble. The process is as follows:—We take a hive from which a swarm has just issued, and put it in the place of another very populous colony. After nine days, by means of the population received from the removed hive, it will certainly swarm again. If it is now shifted to the stand of another strong stock, it will, after two or three days, swarm again. We continue this process as long as we can hear queens piping in the hive of an evening. Under favourable circumstances we may in this way obtain ten to twelve swarms, as the first hive supplies the queens and the others the bees. If, therefore, we have one or two Italian stocks, and feed them well early in the spring, say from the 20th of March, especially if they are well supplied with pollen, we may be sure that these hives will swarm first. By transposing them in this way with German stocks we shall obtain swarms with Italian queens and German bees.

The advantages offered by my system are very great. In the first place we secure early swarms with young queens, and these queens are generally larger and better than those which bees hatch by compulsion. How quickly also can we Italianize a hive; for it is only changing places with two hives and the work is done. We can also put the swarms in any place we choose, which is less trouble than with artificial swarms, which we cannot always establish where we would wish to have them. We know also the day and the hour in which to expect a swarm, for the second appears in nine days after the first removal, the third three days after this, the fourth on the next day, and so on. If we still hear queens piping after the last removal, the stock will swarm to-morrow, and if we convey it into a dark cool cellar in the evening, we can cause it to swarm at any hour we please by bringing it out into the light and sunshine, and feeding it moderately.

It follows, as a matter of course, that the foregoing method can only be practised with single hives, which can be moved from place to place although they may have fixed combs. Those who have bee-houses can, however, adopt it, because they can transfer their hives from one place to another.

I have still to add one remark:—The process for securing pure fertilisation can only be relied on early in the season, and not towards the end, for it often happens that certain stocks which have hatched young queens will, as soon as they are fertilised, begin to expel their drones, as I have observed to be the case this year. In such instances the drones do not cease flying so punctually as usual, but often continue on the wing from early in the morning until quite late in the day. We must not, therefore, be too late in breeding Italian queens, and liberal and judicious feeding is and will be the surest means of expediting it.

In the hope that you will be enabled to make experiments, the results of which may not be marred by any unforeseen accident, and desiring that you may be satisfied by experience of the value of my method, I am, &c., Koehler.

Bees.—One of our correspondents in this city sends us the following:—The deficiency of flowers in Toronto gardens has driven the bees to the sugar factories. At Hessin's Sugar Bakery, on King street, these industrious insects may be seen as thick as flies are ordinarily in such situations. They go in and out of the workshop, and no doubt appropriate every morsel they can get at. Immense numbers are killed, but it does not seem to thin the comers. Query.—Do bees, when fed on sugar, produce honey? If so, in what proportion?

The Household.

Bad News for the Rats

Recent experiments show that squills (*Scylla maritima*), the enormous bulbous root of which is much used in medicine, is not only a powerful poison for rodents, but also one they are very fond of. The way of preparing it for the desired purpose is as follows: One of the bulbs is cut into slices, hashed and bruised, then done in the can with fat, which is afterwards strained through a cloth and poured into broken plates and saucers, to be placed in the cellars and other places infested with rats, mice, &c. To prevent dogs and poultry from eating of this poisonous compound in stables, pigeon-houses, or farmyards, it may be put into a wooden box, about a foot and a half long, and having a hole at each end. The rat gets in at one end and goes out at the other, after partaking of the noxious food, which soon kills it. Squills may also be reduced to powder for the same purpose, by bruising them in a mortar to a pulp, which is afterwards incorporated with as much flour as it will hold. This paste is then rolled out, as they do for a pudding, then cut into shreds, which are left to dry on hurdles or on sheets of pasteboard, and are afterwards pounded in a mortar. The powder thus obtained will keep for years, and may be put into boxes or barrels. If manufactured on a large scale, it may become a profitable article of exportation. In Algeria squills cost nothing, the country being absolutely overrun with them.—*English Paper.*

How to Keep Silk.

Silk articles should not be folded in white paper as the chloride of lime used in bleaching the paper will probably impair the color of the silk. Brown or blue paper is better; the yellowish, smooth, India paper is the best of all. Silk intended for dress should not be kept long in the house before it is made up, as lying in the folds will have a tendency to impair its durability by causing it to cut or split, particularly if the silk has been thickened by gum. Thread lace veils are very easily cut. But dresses of velvet should not be laid by with any weight above them; if the nap of a thin velvet is laid down, it is not possible to raise it up again. Hard silk should never be wrinkled, because the thread is easily broken in the crease, and it can never be rectified. The way to take wrinkles out of silk scarfs and handkerchiefs is to moisten the surface evenly with a sponge and some weak glue, and then pin the silk with some toilet pins on a mattress or feather bed, taking pains to draw out the silk as tight as possible. When dry, the wrinkles will have disappeared. The reason of this is obvious to every person. Some silk articles should be moistened with weak glue or gum water, and the wrinkles ironed out by a hot flat-iron on the wrong side.—*Leisure Hour.*

Herbs.—Every housekeeper, where there is a garden attached to the premises, should have her bed of herbs of all the different varieties used in a family. They are very hardy, and once cultivated they will not soon be given up

☞ "Cheaper than dirt" is the pertinent inscription on a case of soap in an apothecary's window.

☞ When the Hindoo priest is about to baptise an infant, he utters the following beautiful sentiments: "Little baby, thou entorest the world weeping, while all around thee smile. Continue so to live that you may depart in smiles, while all around you weep."

Test Your Kerosene.—In view of the many lamp explosions resulting almost invariably from the use of bad kerosene, we urge upon the heads of families the importance of testing their oil before use in the lamp. This may be readily done by any man, woman or child, by means of a thermometer, a little warm water, and a tablespoonful of oil. Fill the cup with warm water, the temperature of which is to be brought to 110 deg. Fah. Pour the oil on the water; apply flame to the floating oil by match or otherwise. If the oil is unsafe it will take fire, and its use in the lamp is dangerous, *for it is liable to explode.* But if the oil is safe and good it will not take fire. All persons who sell Kerosene that will not stand the fire test at 110 degrees, are liable to prosecution.—*Ex.*

An Imperfect Angel.—One of the younger members of the French Legation at Washington is noted for his gallant and exquisite compliments. One evening, at a "german" at Govenor Morgan's, he was introduced to a witty New York lady who had an ugly flat nose. The polite Frenchman discreetly complimented her on her dancing, to which she archly replied, "Ah! I have heard you are flatterer, but you cannot find it in your heart to compliment me on my personal beauty, so you praise my dancing." "Madam," was the reply, with a Parisian bow, "you are an angel from heaven, but you fell on your nose." —*Exchange.*

Miscellaneous.

The Trial of the Rooks.

At a recent meeting of the "East Lothian Agricultural Club," Mr. Durie, Barneymains, in speaking to a motion, of which he had given notice at last meeting, as to the desirableness of diminishing the number of crows (rooks), said that he was certain that crows did an immense amount of damage to every farmer in the county. Mr. Scott Skirving, and other friends of the crows, said that they killed vermin. No doubt they did; but if they could put the amount of damage against the amount of good they did, the balance would be found to be on the wrong side for the farmer. He did not want their entire extirpation, but simply that they should be kept down, say to about half the number there were at present. He moved a resolution to the effect that the club was of opinion that the number of crows should be diminished, and that the proprietors should be communicated with, in the hope of their taking means to destroy them in their districts.

The Chairman stated that many years ago an application was made to the Earl of Wemyss to allow persons to kill crows in Amisfield Park. His Lordship gave orders that every one should be killed, and 30,000 were supposed to have been destroyed in two days. From that day to this, not a crow had been allowed to build in the Park. He did not think the crows were so plentiful in the county as they once were, but they were still too numerous.

Mr. Mill, Lugate, said he really thought that to a large extent the crows were the farmer's friends. They preserved the crops from grubs, and he thought it would be for their advantage if magpies and hawks were allowed to live, as they were many years ago, for the purpose of keeping down the small birds.

Mr. Elder, Bearford, thought crows kept in a limited number would do good, but not in their present number. He knew that crows were fond of worms and grubs, but he also knew that they liked wheat, especially when coming through the ground. They might sow to the extent of a bushel of wheat less per acre but for the crows. If those who spoke in favour of the crows had visits from as many of them as he had, they would have a different opinion.

Mr. Elliott, Abbey Mains, seconded Mr. Durie's motion.

Mr. Jenkinson, Kidiaw, said that the crows "harried" a great number of the partridges' nests—otherwise, he had never seen them do any harm.

Mr. Smith, Whittingham, said his opinion was not confined to this district—that the crows were very destructive. They took up, for instance, seed potatoes when they were planted. He had known them carry off these potatoes in their bills, and drop them when pursued. Whatever might be the natural food of the rooks, he thought that it was evident that they had a "crap for all corn." Whatever magpies did, it was well known that rooks destroyed eggs to a large extent, so that he did not think it would require much persuasion to get gamekeepers to promote their views.

Mr. Mill said he never in his life saw crows attacking ripe grain; he had seen it many a time, however, destroyed by wood-pigeons. He never in his life saw crows on a stook.

Mr. Belfrage corroborated Mr. Smith's opinion as to the damage inflicted by crows in the potato fields.

The Chairman said a celebrated naturalist had stated that he would be obliged to any gentleman who could tell him that he ever shot a crow and found a grub in it, averring that they did not like the grubs.

Mr. Paton, Standingstane, said that he would much rather have partridges and small birds increased than the continuance of the present number of crows.

Mr. Wyllie, Bolton, stated that the crows in seeking the grubs pulled out the plants. He thought that instead of looking to crows for the destruction of vermin, they should apply the manures which would accomplish that object. He had seen thousands of crows sitting on stooks, and found many of them, which could not be taken in for some days on account of the wet, reduced to mere chaff.

Mr. Durie's resolution was then unanimously agreed to.—*Mark Lane Express.*

Cemetery Advertising

It is well known that at the Père-la-Chaise Cemetery, Paris, there stands in a conspicuous position a splendid monument to Pierre Cabochard, grocer, with a pathetic inscription, which closes thus:—"His inconsolable widow dedicates this monument to his memory, and continues the same business at the old stand, 167, Rue Mouffetard." Now, a Parisian paper relates that a short time ago a gentleman, who had noticed the above inscription, was lead by curiosity to call at the address indicated. Having expressed his desire to see the Widow Cabochard, he was immediately ushered into the presence of a fashionably dressed and full-bearded man, who asked him what was the object of his visit. "I came to see the Widow Cabochard, sir." "Well, sir, here she is." "I beg pardon, but I wish to see the lady in person." "Sir, I am the Widow Cabochard." "I don't exactly understand you. I allude to the relict of the late Pierre Cabochard, whose monument I saw yesterday at the Père-la-Chaise." "I see, I see," was the smiling rejoinder. "Allow me to inform you that Pierre Cabochard is a myth, and therefore never had a wife. The tomb you admired cost me a good deal of money, and, although no one was buried there, it proves a first-rate advertisement, and I have had no cause to regret the expense. Now, sir, what can I sell you in the way of groceries?"—*The Grocer*

An Opening for Emigrants.—Any stout, healthy young fellow, who has no desire to amass money—who has no objection to continual watchfulness and occasional hard work—who does not fear exposure to all sorts of weather—who can be content with mutton and hard biscuits every day all the year round; and lastly, who has no particular love for the society of either man or woman, might be very happy as a shepherd in Buenos Ayres, and will have no difficulty in finding employment.—*Random Sketches of Buenos Ayres.*

Argumentum ad Hominem."—A sceptical young collegian confronted an old Quaker with the statement that he did not believe in the Bible. Said the Quaker:

"Does theo believe in France?"

"Yes, for, though I have not seen it, I have seen others that have: besides, there is plenty of corroborative proof that such a country does exist."

"Then theo will not believe anything theo or others has not seen?"

"No, to be sure I won't."

"Did thee ever see thy own brains?"

"No."

"Ever see anybody that did?"

"No."

"Does theo believe theo has any?"

Quits.—A leading farmer of the parish having refused to pay, the churchwardens resolved to make an example of him. A summons was therefore taken out against the farmer, and in due course a warrant of distress was lodged in the hands of the officers, from whom he was informed he might expect a visit in a day or two. Our farmer accordingly took the precaution of removing from his yard all the stock which it would be inconvenient to have sold under such disadvantageous circumstances. A sow happening to wander into the premises, was, however, suffered to remain, and the bailiffs and police hauled it off in triumph. The animal was presently sold for about one-third of its value, and the churchwarden waited upon the farmer with the trifling surplus that remained after deducting the rate and the costs. "I told you," said he pomposily to the delinquent, "I should be obliged to make an example of you; this is what comes of disobeying the law." "Ah," replied the farmer, "they've sold your old sow, so you'd better keep the balance."

The Colonies of Great Britain.—The colonies of the Empire were established as follows:—Newfoundland, in the year 1536; Malaccas, 1579; Gambia and the African gold coast, 1618; Cape of Good Hope, 1620; Nova Scotia, 1621; Barbadoes, 1624; Nevis, 1628; Bahama Islands, 1630; Antigua, Montserrat and Anguila, 1634; Bengal, 1634; St. Helena, 1659; Jamaica, 1655; Cape Coast Castle, 1661; Bombay, 1662; Tortola, 1666; Dominica, 1668; Belize, 1674; Gibraltar, 1704; New Brunswick, 1713; Prince Edward Island and Cape Broton, 1745; Lower Canada, 1759; Upper Canada, 1760; Grenada and St. Lucia, 1762; Tobago, St. Vincent and Ceylon, 1763; Falkland Islands, 1666; New South Wales, 1770; Sierra Leone, 1787; Vancouver's Island, 1792; Demarara, 1796; Trinidad, 1797; Goze, 1798; Malta, 1800; Port Philip, 1802; Van Dieman's Land, 1803; Heligoland, 1807; the Ionian Isles, 1809; Mauritius, 1810; New Zealand, 1814; Ascension Island, 1815; Natal, 1824; Fernando Po., 1827; Western Australia, 1829; British Guinea, 1831; South Australia, 1834; Victoria (Australia), 1837; Hong Kong, 1849; Labuan, 1848; Lagos, 1851; British Columbia, 1858; Queensland, 1859.

Advertisements.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the March Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-tf

DIEHL WHEAT.

THE Subscriber has for sale a quantity of DIEHL WHEAT at $2 per Bushel.

LEWIS SPRINGER,
Hamilton, Ont.

v5-15-4t.*

Duncan's Improved Hay Elevator.

PATENTED April 12th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,
Port Dover, Ont.

v4-20-tf

FRUIT AND ORNAMENTAL TREES

FOR FALL OF 1868.

WE have the pleasure of announcing that we are prepared for the Fall Trade with an unusually large and well grown stock, embracing

Standard and Dwarf Fruit Trees.

Grape Vines, new and old sorts, strong open ground plants.
Currants, Raspberries, Blackberries, and all the small fruits.

ORNAMENTAL TREES AND SHRUBS,

Roses and Flowering Plants of every description.

Nurserymen, Dealers, and others, purchasing largely, will be dealt with liberally, and all orders, however small, will receive prompt and careful attention. Parties interested will do well to consult the following Catalogues, which are just issued, and will be sent pre-paid on the receipt of 10 cents. each, for Nos. 1 and 2, and 5c. for No. 3.

☞ No. 1, Descriptive and Illustrated Catalogue of Fruits. No. 2, Descriptive and Illustrated Catalogue of Ornamental Trees, &c. No. 3, Descriptive Green House Plants. No. 4, Wholesale Catalogue, FREE.

ELWANGER & BARRY.
Mount Hope Nurseries, Rochester, N. Y.

v5-17-4t.

FUNDS FOR INVESTMENT.

THE TRUST AND LOAN COMPANY, of Upper Canada, have funds for investment, at their usual rate of interest, on the security of improved real estate.

Loans made for fixed periods, or repayable by annual instalments.

Further and full information can be had from the Valuators in each locality, by letter addressed to the Commissioners at Kingston, from

MESSRS. PATTON, OSLER & MOSS,
Or J. W. G. WHITNEY, ESQ.,
Toronto.

v5-18-2t

DYNAMOMETERS,

FOR ascertaining the exact draught of Ploughs, Reaping, and other Agricultural Machines.

RICE LEWIS & SON,
Toronto.

v5-18-1t.

THE "DEXTER CIRCULAR," after six months' trial, is pronounced the most wonderfully quick method ever discovered to make any untrained horse or colt trot fast without the use of a track. One boy made $900 on two common colts; $1,200 on another. Price $1. Address, Geo. A. Atkins, 7 Doy St., N. Y.

P. S.—"We recommend every farmer's immediate attention to this circular." J. W. Forman, Troy Mills, Iowa; C. J. Branes, Egremont, Mass; Charles Palmer, Hilladale, N. Y.; John Glidersleeve, Austerlitz, N. Y.; Russel Tremain, Postmaster, Green River, N. Y., and a hundred others. v5-18-4t

THE FINEST STRAWBERRY

FOR AMATEUR CULTURE!—**NAPOLEON III,** of large size, highest flavor, great productiveness, and extreme vigour and hardiness. We offer a splendid stock of young thrifty plants of this valuable new French variety. Illustrated Descriptive Circular mailed to applicants.

☞ Price of Plants, (by mail, Postage paid,) $3.00 per doz.

EDW'D J. EVANS & Co.,
York, Penna, U. S.

v5-15-4t.

AYRSHIRE BULL FOR SALE.

THE Subscriber will offer for sale at the approaching Provincial Exhibition, to be held in Montreal, A **PURE BRED AYRSHIRE BULL,** 17 months old, from his imported cow "Effie," by the County of Beauharnois Agricultural Society's imported Bull "Marquis."

J. M. GROWNING,
Beauharnois, P.Q

18th August, 1868. v5-17-3t.

MILLER'S

INFALLIBLE

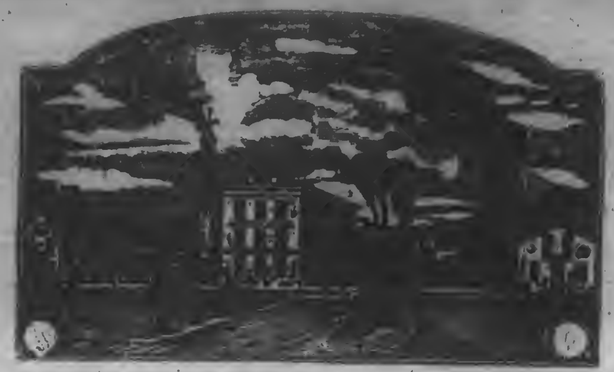
TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
187 King Street East. Medical Hall, Toronto.

v4-14-tf



WE are turning out from five to ten Threshing Machines per day, and can fill orders PROMPTLY. Our machines are not equalled in Canada, nor excelled in the United States. We now furnish the Burwick or Abel Gear without extra charge, and hereby guarantee those purchasing it from us against all loss or damages for infringement of patent claimed for it by Mr. John Abel. Address

F. W. GLEN,
EXECUTOR, OSHAWA, ONT.

August 28, 1868. (5 17-tf.)

IMPORTANT
AUCTION SALE
OF PURE-BRED
SHORT-HORNED CATTLE
AND
LEICESTER SHEEP.

THE Subscriber has received instructions from Mr. Wm. Douglas to offer for Sale by Auction, at his farm, **Lot No. 80, Township of Onondaga**, four miles West of the Caledonia Station of the B. & L. H. R., on **Thursday**, the **15th Oct., 1868**, the following valuable stock:

Three Cows in Calf; two Heifers, two years old, do.; three Heifer Calves; five Bull Calves; one Grade Cow; one Grade Heifer, two years old; twelve pair Shearling Leicester Ewes; eight pair Ewe Lambs; six Rams, and eight Ram Lambs. Full Pedigrees of the Durhams will be furnished at sale.

TERMS OF SALE:—Twelve months credit will be given on furnishing approved endorsed notes.

☞ Sale to commence at eleven, a. m.

HENRY PEATMAN,
Auctioneer.

Onondaga, Sept., 1868. v5-18-2t

SHORT-HORNED CATTLE
AND
IMPROVED FARM STOCK.

MR. THORNTON, having lived ten years with Mr. Strafford, editor of "Coates' Herd Book," is prepared to buy and ship SHORT-HORNS, or any kind of pure bred farm stock, supply information regarding them, or execute commissions in the old country.

"The Circular," a record of Short-Horn transactions in England, and list of animals for private sale, published at intervals. Price $6 annually. Post free.

JOHN THORNTON,
15 Laugham Place,
London, England.

v-5-18-7t

IMPORTED BERKSHIRE PIGS,

THOROUGHBRED, and from get of Imported and Provincial first prize animals.

☞ **One Litter for Sale at LOW FIGURES.**

J. F. CASS,
L'ORIGNAL, O.

v5-18-1t*

STERLING ALGUIRE'S
MILK AGITATOR,
PATENTED APRIL 15, 1868.

STERLING ALGUIRE PATENTEE,
FARMERSVILLE, ONT.

☞ For particulars address

J. B. HARRIS, ASSIGNEE,
Belleville, Ont.

The attention of factory men is respectfully called to the following testimony from one of the best factories in Oxford County:

NORWICH, ONT., Aug. 26, 1868.

J. B. HARRIS,

DEAR SIR,—Your Agitator needs no recommendation, it will recommend itself, and every cheese manufacturer can become convinced by giving it a fair trial; for my part I would not have it taken out of my two vats for twice the price. No cream can possibly rise, and it cools the milk to the same temperature as the water with one quarter inch stream of water.

Respectfully yours, H. S. LOSEE.

v5-17-1t

MONTREAL VETERINARY SCHOOL
IN CONNECTION WITH MEDICAL FACULTY OF
McGILL UNIVERSITY,
UNDER THE PATRONAGE OF
THE BOARD OF AGRICULTURE,
PROVINCE OF QUEBEC.
(ESTABLISHED 1866.)

CLASSES.	LECTURERS.
Anatomy of Domestic Animals, Botany	D. McEACHRAN, M.R.C.V.S. PRINCIPAL DAWSON.
Institutes of Medicine (Physiology and Histology,)	PROF. FRASER.
Chemistry (Theoretical and Practical,)	PROF. CRAIK.
Veterinary Medicine and Surgery,	D. McEACHRAN, M.R.C.V.S.

Practical instructions daily. Dissection during the Session. Lectures commence 12th November.

☞ For Particulars apply to

GEO. LECLERC, ESQ.,
SEC. BD. OF AGRICULTURE.
Or to D. McEACHRAN, V.S.,
697 CRAIG ST., MONTREAL.

v5-18-4t.

Markets.

Toronto Markets.

CANADA "FARMER" Office, Sep. 11th, 1868.

THE Produce market since our last report has been quiet and dull. Barley has been offering, but the receipts have been light since the decline in prices. Only a very few loads of wheat have been offering on the street market.

FLOUR—The market is still dull. Holders have been asking $6 for No. 1 super, and buyers have refused to buy at that price. Some lots were offered to day at $6 85 and found buyers at that price; choice brands might bring 5c. more, or $6 90. There are very few buyers, however, at these prices. Extra is selling in broken lots at $7. Superior is nominal, offering at $7 25 without buyers.

Oatmeal—Only a retail demand; selling at from $6 50 to $6 75.

Cornmeal—Selling at from $4 to $4 5c.

Wheat—There are only a few lots in the market. Spring wheat is in fair demand, but prices are weak. There are buyers at $1 25 here. Fall wheat is nominal at $1 30. There are no lots on the market, and it is impossible to give correct quotations. Midge-proof sells at about the same rate as spring. There is, as yet, very little coming in on the street market. Street prices are—Spring and Midge-proof $1 27 @ $1 28; Fall $1 30 @ $1 33, according to quality.

Oats—The market remains unchanged. Holders are asking 51c. for car lots. There are no buyers at over 48c. to 50c—on the street market buyers were paying 51c.

Butter.—Coming in slowly; holders are firm, believing that buyers will have to come to their terms; we quote dairy from 20c. to 22c.; round lots 18c. to 20c.; those packed in small lots sell at 19c.; rolls on the market 25c. to 27c.

Eggs.—Selling on the market at from 11c. to 13c.; shippers are paying 11½c.

Cheese.—Only a retail trade doing; worth from 11c. to 12½c.

Pork.—In few hands; holders are asking $24, with a few small lots selling at $23 75.

Bacon.—Selling in small lots at 11c. to 12½c.; market is very bare.

HAY AND STRAW.

There is not much hay yet coming in. Prices continue to be well maintained. We quote hay at from $11 to $15. Straw is rather low; and ranges from $6 to $8.

Barley.—The recent decline in the United States markets has lowered prices here. The receipts from farmers' teams have in consequence fallen off very materially. On no day this week has there been over 5,000 bushels received on the street market, and the receipts by car have also been greatly diminished; not amounting by half to those of the previous week. The decline has depressed the market; few large lots have been offering, and there has not been much desire to buy. To-day there were buyers of cargo lots at 95c. On the street market prices have ruled steady during the week from 95c. to 97c. There seems to be no likelihood of an immediate advance from these prices, as the tendency of the U. S. market is downward.

Peas.—There has been nothing doing in car lots—prices are nominal at 95c.; on the street market from 95c. to 96c. was paid.

Montreal Markets.—Sept. 11.—*Flour.*—Superior Extra, $7 25 to $7 50; Extra, $6 50 to $7 00; Fancy, $6 25 to $6 50; Welland Canal, Superfine, $5 90 to $5 95; Superfine No. 1 Canada wheat, $5 90 to $6 30; No. 1 Western wheat, $5 90; No. 2. do. $5 60; Fine, $5 20; Middlings, $4 50 to $4 75; Pollards, $3 to $3 50. Bag Flour, $3 to $3 10.

Wheat—Canada Fall, $1 30; Canada Spring $1 30; Western $1 30. *Oats*—Per 32lbs. 45c. to 46c. *Barley*—Per 48lbs. 90c. *Butter*—Dairy 20c. to 21c; store packed 19c. to 21c. *Cheese*—Factory, 10c. to 10½c. per lb.; Dairy 9c. to 10c. *Eggs*—14c. *Ashes*—Pots, $5 75.; Pearls, $5 30c. *Pork*—Mess, $24; thin Mess, $24 50c; Prime Mess, $18 75c.; Prime, $16 25c. *Lard*—10c. to 10½c. *Peas*—$1 10c. to $1 12½c. *Rye Flour*—$4 50c. *Oatmeal*—$5 60. *Cornmeal*—$4 to $4 10.

Milwaukee Markets.—Sept. 11, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 91,000 bushels; shipments, 70,000; No. 1 wheat dull at $1 67½ to $1 68; No. 2 do. at $1 53½ to $1 54. Flour nominal. Pork firm at $20. Freights unchanged.

Chicago Markets, Sept. 11, noon.—William Young & Co.'s report.—Wheat—Receipts, 36,000 bushels; shipments, not reported. No. 2 wheat quiet at $1 56½. Corn dull at 97½c.; receipts 77,000 bush.; shipments, 118,000 bush. Pork unchanged.

Contents of this Number.

	PAGE
THE FIELD:	
Puro Seed—(with cuts)	273
Agriculture—Its advantages	274
How to Enlarge our Crops	274
Refuse from Flax Mills	274
Muck for Hops	275
Artificial Harvesting	276
STOCK DEPARTMENT.	
Animal Heat	275
VETERINARY DEPARTMENT:	
Injury and Disease of the Horse's Foot	275
THE DAIRY:	
Sterling Alguire's Milk Agitator—(with cut)	276
Rearing Calves; Now Cow-Milking Apparatus; Bran for Milch Cows	276
HORTICULTURE:	
Meeting of the Ontario Fruit Growers' Association	276
The President Wilder Strawberry—(with illustration)	277
English Apples in Canada	277
ENTOMOLOGY:	
Specimens from a School Girl	278
The Horned Corydalis, or Shad-Fly—(with cut)	278
An Emperor Moth's Cocoon	278
POULTRY YARD:	
Fancy Pigeons	278
Roup in Fowls	279
Standard of Excellence in Exhibition Poultry	279
CORRESPONDENCE:	
Queries from a New Settler	280
Caution to Smokers	280
EDITORIAL:	
New England Agricultural Fair—(with illustrations)	280
Stray Notes of American Travel	282
Distress in Red River	283
LITERARY NOTICES:	
The American Entomologist; Iddian Corn; Country Gentleman's Magazine; Whitlock's Horticultural Recorder	284
AGRICULTURAL INTELLIGENCE:	
Agriculture in Scotland	284
Fall Shows; Wheat Premiums; Breeding Horses in Australia; New York Grape Growers' Exhibition	285
THE APIARY:	
The Koehler Secret Revealed—A New Mode of Propagating Ligurians	286
THE HOUSEHOLD:	
Bad News for the Rats; How to Keep Silk; Herbs; Test your Kerosene; An Imperfect Angel	286
MISCELLANEOUS:	
The Trial of the Rocks; Cemetery Advertising; An Opening for Emigrants; Argumentum ad Hominem; Quits; The Colonies of Great Britain	287

THE CANADA FARMER is printed and published on the 1st and 16th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for..... NINE DOLLARS.
TWENTY COPIES for..... SIXTEEN DOLLARS.
FORTY COPIES for..... THIRTY DOLLARS.
ONE HUNDRED COPIES for..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

VOL. V. No. 19. TORONTO, CANADA, OCTOBER 1, 1868. POSTAGE FREE.

The Month.

OCTOBER, it has been well observed, "is regal, and walks the woods royally with great show of purple and crimson, while a veil of golden mist streams from the tiara of the queenliest of the months." The mean temperatures for this month are very similar to those for May, as will be seen by comparing the following table with that which appeared in our article on that month:

Stratford	47° 93'
Hamilton	50° 62'
Barrie	48° 82'
Toronto	49° 09'
Belleville	49° 58'
Montreal	45° 76'
Quebec	46° 26'
St. John, N.B.	44° 35'
Halifax	45° 00'

But if there be similarity between May and October in temperature, there is a very decided dissimilarity in other respects. The air is not Spring-like. It is not charged with the juiciness and stimulus that distinguish the season of growth. There is no show of young shoots, nor smell of wood and soil. Instead of the bursting forth of activity and life throughout nature, there is the hush of repose and the sense of leisure. It is plain that the year is composing itself to rest after its appointed season of toil and bustle. Peace broods upon the hills and valleys. Beauty shines through the mists of morning, and golden glory paints the sunset at even. The forests are decked in a coat of many colours, and all nature puts on holiday attire. Very graphically does Henry Ward Beecher portray this month in one of his "Star Papers." "October! Orchard of the year! Bend thy boughs to the earth, redolent of glowing fruit! Ripened seeds shake in their pods. Apples drop in the stillest hours. Leaves begin to let go when no wind is out, and swing in long waverings to the earth, which they touch without sound, and lie looking up, till winds rake them, and heap them in fence corners. When the gales come through the trees, the yellow leaves trail, like sparks at night behind the flying engine. The woods are thinner, so that we can see the heavens plainer, as we lie dreaming on the yet warm moss by the singing spring. The days are calm; the nights are tranquil. The year's work is done. She walks in gorgeous apparel, looking upon her long labour, and her serene eye saith 'It is good.'" This description is peculiarly applicable to the Fall season of Canada, and nowhere in the world, perhaps, is the splendid colouring of the dying foliage at this period of the year so striking or beautiful as in our Canadian forests. The marvellous hues that give our woods their autumnal beauty, so rich that a painter can scarcely depict them faithfully without laying himself open to the charge of extravagance, are chiefly due to the prevalence of the maple in our woodland scenery. No other tree can vie with this in the variety and loveliness of the tints which the foliage assumes in its departing glory. The oak, the elm, and beech, with their appropriate drapery add to the charm and grandeur of the scene. Nature puts on a royal robe well befitting the solemn repose that precedes the sterner reign of winter.

But amid this general restfulness, the farmer must not suffer his energies to flag. It is not for him to think of repose yet. There are autumn crops to harvest, and every endeavour must be made to house them in good order. The potatoes must be dug, and happy is he who has one of those newly-invented labour-saving machines known as "potato diggers." If there be any field-work more fit for a horse than a man, it is this tiresome, laborious, back-breaking toil of getting up the potatoes. It is important that fine weather be chosen for potato-digging. They will be less likely to rot if put away dry, and besides they are cleaner and better every way. They should be put into cool and well ventilated cellars, or into pits provided with air and drainage. The same observations apply to other root crops. Turnips will continue to grow through October, and as they will stand considerable frost without injury, harvesting may be postponed until November. Fruit must be gathered this month, and its value will depend much on the care exercised in the process. It should be hand-picked and handled as tenderly as eggs. Orchard trees are often bruised and injured by the inconsiderate use of ladders. This should be avoided, and at all seasons it should be remembered that a tree is a living thing, not to be treated roughly with impunity. Various improvements may be advantageously undertaken this month. We generally do our road work in spring, but in the New England States it was formerly, and for aught we know is now, done in autumn. Better still perhaps it would be to do something at the roads at both periods. We greatly need in all parts of the country a more thorough system of road-making. We go on shovelling the accumulation of the ditch and road-side into the carriage track as though decayed leaves and old turf would make good footing for iron-shod horses and iron-tired wheels. Rarely is gravelling and metalling undertaken except when a chartered company takes a stretch of road in hand to make money out of it, and then farmers pay for their whistle, when they might have had it for next to nothing were a wise system of statute labour pursued. The fact is, we are too niggardly of time, toil, and outlay on our roads, and do not properly appreciate their value, and the importance of their being well constructed and kept in good repair. October is also an excellent month for all such operations as grading, cleaning, trenching, draining, planting, or building stone wall. There is no better time for cutting timber than just when the leaves are ready to drop from the axils of the newly formed buds of the year to come. Firewood cut this month is represented to be more valuable for heating purposes than when felled at any other season, and cedar or other wood wanted for rustic work, will hold its bark better and be more durable if cut in October. Those who prefer to plant their shade or fruit trees in the fall, should have a care not to defer it too late. It is not needful or best to wait until leaves have actually fallen. If there is full ripeness of wood, and the leaves are beginning to drop, it is quite time to transplant if it is to be done in autumn. But we confess ourselves decidedly in favour of spring planting in the latitude of Canada. As observed last month, it will pay to bestow early and thorough attention on fattening stock. Their growth should never be checked by exposure to cold or by short allowance of food. It is advisable also to have all store and working animals in as good condition as possible at the beginning of winter. They will keep more easily for it, and come out in better heart when spring opens. Sheds, barns, and buildings of all kinds must be put in thorough repair before winter, or the comfort of stock will be diminished and the consumption of food increased. This is a good month for out-door painting. It is said to stand better if applied at this period than either during spring or summer. Let the work be done whenever it may, it is labor and expense well bestowed.

A variety of garden operations may be advantageously performed in October. Gathering and stowing of vegetables, manuring, ploughing and spading, that the soil may be mellowed by winter frosts, taking out of the ground bulbs that are tender, and planting hardy ones for early spring flowering; these, and various other odd jobs, will make the garden as well as the farm a busy scene during the present month.

Final preparations for winter must now be made in the apiary. Whatever shifting, uniting of weak stocks, feeding deficient stocks, and the like, may require to be done, should be delayed no longer. Hives should only be opened on warm, sunny days now, if any internal attention is needed, as bees are easily chilled, and do not quickly recover the effects of cold.

The Field.

Agricultural Productions at the Provincial Exhibition.

The Agricultural and Horticultural productions were exhibited in a spacious shed erected for the purpose near the Crystal Palace Building. For various reasons it was late before they were collected together, and before they were well in place the judges had to commence work. During the time they were thus occupied on the second day of the fair, all other visitors were excluded from the building, and it was not till some time on Wednesday that their task was completed. By that time the crowd of visitors was so great that a leisurely examination was not practicable. It is only possible therefore to give a general account of this department.

The display of grain, as was to be expected from the character of the past season and harvest, was excellent as regards the quality of the cereals. It is to be regretted, however, that there is not greater competition in what is the main business of every farmer. The premiums, especially those of the Canada Company, and the Association's prize for the best twenty-five bushels of wheat, are on a liberal scale, yet, if we are not mistaken, there were very few competitors for these prizes. This is the more to be regretted, inasmuch as the larger quantity required gives really a better test of the quality of the crop, and we are not sure that it would not be a great improvement on the present system to substitute rewards for the best field of any produce, in place of the best bushel, or the best eight or twelve samples. A market gardener can raise tremendous roots on a single rood of land, by an amount of culture and expenditure of fertilizers which the farmer could scarcely imitate on the wider scale of his acres. We would not, however, disparage the good sample in limited quantity. To say nothing of its being the most convenient, if not sometimes the only practical, method of display and competition, these experiments on a small scale teach us what can be done by labor and manure, and point the farmer in the right direction towards success in his more extended field. Still, we think an *addition* might be made with advantage to the present list of prizes, and awards made for the best field of any crop, the best orchard, or the best cultivated farm.

The recent Exhibition afforded evidence of the capabilities of the country for wheat raising, the samples of this grain being most of them of superior quality. Mr. John Hamilton, of Strabane, was well entitled to the honor of winning the Canada Company's prize for the best twenty-five bushels of wheat. He gained also the first prize for the best two bushels of both white and red fall wheat. The berries in all the samples were remarkably fine, plump, even, and of good color. If such grain were exclusively used for seed, our wheat returns would soon show a very different result from that of recent years. The second prize given by the Association was gained by Thomas Turnbull, of South Dumfries, for twenty-five bushels of Diehl wheat, which compared very favorably with any in the Exhibition. J. McEver, of Hamilton Township, who last year obtained this prize of the Association, has the third awarded to him, for twenty-five bushels of Scules wheat. Six years ago, we are informed, he purchased sixty-seven lbs. of seed wheat, and obtained as the produce in the following year four and a-half bushels, which he again sowed, and from the yield he gained the Association's second prize. In the next year (1866) he gained the third prize for this same variety; and in 1867 was again successful with it in obtaining the second prize, while the produce of the same seed obtained in other hands the first or Canada Company's prize, the grain having been put out a little greener than in Mr. McEver's field. We would congratulate him on his success, and trust that he will go on, not perhaps with the same seed, but with the same perseverance and careful culture, till he has gained the first place, which he has hitherto failed to reach. There were other good samples of fall wheat exhibited. Joseph Rymal, of Hamilton, obtained the second prize for two bushels of white wheat, scarcely at all inferior to that shown by Mr. Hamilton. It is, however, unnecessary, and would occupy far too much space to specify individual samples, especially as the prize list already published indicates in a great measure the meritorious exhibitors. The samples of spring wheat, notwithstanding the drought, seemed up to the usual mark.

The barley was good, nearly all of a bright colour, though some of it was lacking in weight. That shewn by Allan Bond, of Storrington, was especially fine.

There was not much competition in winter rye, but the samples were good.

The oats did not seem up to the usual standard, though some of the bags, both of the white and black variety, were, considering the season, very fine.

The samples of peas shewed less of the effects of the long drought than would be expected, but there can be no doubt the yield per acre would tell a different story.

Of field beans there was only a small but fair show.

There were some really fine samples of Indian corn, some of the yellow varieties being especially worthy of note. Some specimens shewn by Thomas Eastbrook, of Flamboro, and H. J. Brown, of Niagara, were particularly good.

The display of field seeds of various kinds was very limited, though this is a department that deserves every encouragement. It is one of great importance, and by no means the least lucrative field of agricultural enterprise. Mr. A. Thompson, of East Flamboro', obtained the first prize for the best bushel of timothy seed, and Mr. John Smith, of Burford, for clover seed. Samples of Alsike clover were shown by the President of the Association, T. Stock, Esq., of Waterdown, and F. M. Thomas, of Brooklin—the latter gaining the first prize. C. Holt, of Whitby, is another diligent cultivator in this department, and gained prizes for turnip, carrot and mangel wurzel seed.

There were fifteen bales of hops exhibited, for the best sample of which W. H. Bailey (of London) gained the first prize.

The display of field roots was, though not large as to quantity, really magnificent and astonishing in the size of some of the specimens. Mr. W. Burgess' display of mangel wurzel especially deserves emphatic notice. His success in raising these gigantic roots is due, we understand, to the application of night soil to the crop, and farmers as well as market gardeners should take note of the unappreciated value of this too much wasted fertiliser. The Chinese and Japanese should teach the "barbarians" of Canada a lesson in this respect. There were other splendid samples of the several varieties of mangolds, but none equal, taken altogether, to the collection of Mr. Burgess. In turnips, purple top, green top and skirvings were also exhibited. The grey stone and yellow Aberdeen were also represented, though slenderly as regards the number of exhibitors. T. Stock, Esq., of Waterdown, was as extra entries. In some sections, again, the competition was small, or *nil*.

Near the main entrance to the show grounds was the space allotted for Reapers and Mowers, which were shown by themselves—the other agricultural implements being displayed to the north and west of the building. Among the Mowers and Reapers, H. A. Massey sent from his extensive works at Newcastle a beautifully finished combined machine (Wood's patent); also a separate Reaper and Mower. These are all well known to the agricultural community of Canada, and the high appreciation in which they are held may be gathered from the fact that they have now been manufactured for several years in Canada, and that last year alone Mr. Massey made upwards of 500. For a still longer period they have been favorably known in the United States, where they take the lead, more than 23,000 having been made last year. Those manufactured by the Newcastle works gained first prizes at previous Provincial Exhibitions of 1865, 1866 and 1867; and at the World's Exposition at Paris last year, Wood's reaper gained the highest distinction, and distanced all others in competition. An excellent mower and reaper was shown by John Watson, of the Ayr Foundry, with a single reaper from the same place. Benjamin Bell, of St. George, sent a combined Mower and Reaper, with F.A. Ball's Ohio attachment for mowing. The reaper can either be used as a self-reaper or not, at pleasure. It cuts six feet in width, but the draught is said to be comparatively light, having been found under 200 lbs. at recent trials. John Scott, of Caledonia, was another of the numerous competitors in this section, and also sent a mower, and combined machine. The wheels in this are wider than most other machines, by eight inches, and great steadiness is gained in consequence. John Forsyth, of Dundas, exhibited two single mowers, and three combined machines on the Ball's Ohio principle, with some improvements of his own. Mr. Collins, of Guelph, showed his patent grain harvester. F. W. Glen, of Oshawa, from the Joseph Hall Works, showed the Dick's self-reaper, a combined mower and reaper, also a Wood's self raker. Yales & Co., of St. Catharines, exhibited a "Cayuga Chief" combined mower and reaper; also a mower, and a third implement with a self-raking attachment. In these reapers the pole is connected to the machine by a hinge, which relieves the horses' necks from considerable weight. They are also constructed with a revolving action to the finger bar, by which they can be made to cut close to the ground, when desired, or the points of the fingers can be raised up so as to clear rough ground and cut higher. This change is not effected by raising and lowering the finger bar and sickle perpendicularly, but by giving it a rotary movement on its axis, so that the points chiefly are elevated or depressed. Haggart & Brothers, of Brampton, showed a Ball's Ohio Reaper, with Dodge's self-raking attachment; also, a combined implement without the self-raker, and a simple mower. The rotary motion is also given to the finger bar in these machines. L. D. Sawyer & Co., of Hamilton, exhibited two combined machines, and also a mower. Lawrence & Co., of Palermo, had a Ball's Ohio combined, with self-raker, which is noteworthy, among other excellencies, for an improvement in the adjuster for raising the finger-bar, which is done by a wheel and axle instead of a lever, and considerable power thereby gained. Paxton, Tate & Co., of Port Perry, showed the Marsh Harvester, a machine which has been fully described in the Canada Farmer, and of whose merits we entertain a high opinion. It was to us a matter of surprise that it was not in some way distinguished in the award of the judges. The successful competitors—and the remark just made is no way disparaging to them—were Messrs. Massey, Glen, Haggart, Lawrence, Yale and Forsyth.

There was quite an imposing array of threshing machines, and second to none among these was Abell's splendid and beautifully finished thresher and separator, which has already gained such distinction, and given the Woodbridge work a high reputation in this department. The machine has been so often fully described before that it is scarcely necessary again to advert to its advantages. The side delivery of the straw carrier is peculiar to it. The guarding of the gearing and coupling is almost complete, and in this respect the only machine that rivals, if it does not eclipse it, is Hoggert's. The whole is a model of good workmanship and well-contrived machinery. The power used is Pitt's power, and the shaft that goes through is furnished with couplings at each end, so that the machine can be run from either side. Mr. Abell was again the winner of the first prize.

Haggart and Bros. showed an excellent machine with several recent improvements introduced, consisting chiefly in contrivances for economizing power and protecting the gearing, so as to diminish the liability to accident. In the first place, the wheels that drive the cylinder and other parts, revolve outward instead of inwards, so that the fingers or dress of an attendant could not be caught between them while in motion. The tumbling shaft is protected by a wooden sheath, within which it revolves, thus affording complete protection from these terrible catastrophes which sometimes happen from the dress being caught. Additional security is also gained by the manner in which the couplings are guarded, so that there are no projecting bolts. There is also a very convenient arrangement for delivering the grain, a point often neglected, and this part is effectually screened from dust and chaff blowing back into it, an accident which often happens in other machines to such an extent as to neutralize in a great measure the good effects of the separator. Another convenience provided by this inventor is a seat for the driver, which can be attached to the power or not at pleasure. For this excellent machine the second prize was awarded. Glen, of Oshawa, showed their thresher known under the name of the "Farmer Boy's Friend;" and Sawyer & Co. exhibited another, manufactured by them at their Hamilton works. In this machine the shaking motion communicated to the sheo is equally applied at each end, so as to secure an even lateral motion, in place of the oscillating movement usually observed. Their power is also made very secure by a wrought iron horizontal bar, which gives great steadiness to the working. The same firm showed an improved drag-saw and two kinds of chaff and straw cutters, one for hand use, and the other for either hand or power. Maxwell & Whitelaw showed their well-known machine called the Champion Thresher. The power used to drive this machine is the Planet power, and is entirely constructed of iron. They showed, besides, a small and very convenient power for use on the farm, which will be found well adapted for a number of purposes, such as sawing wood, cutting straw, &c. This firm exhibited other implements, which are noticed in their place.

Near these, the steam-engine of C. H. Waterous & Co., from the Brantford Works, was in full operation, and attracted immense crowds of interested spectators. This beautiful engine is constructed on the same principle as that exhibited last year at Kingston. It is sixteen-horse power, and is adapted to be used either as a stationary or portable engine. With this motive power were set at work a pony saw-mill, a lath mill and bolter, Hall's patent shingle mill, and a variety of grain-crackers and corn and cob-crushers. Within the same railed area this firm also exhibited a fine assortment of inserted teeth and perforated teeth saws. The Brantford engine and its accompaniments formed quite a feature in the recent, as it has done in former Exhibitions.

Not far from this centre of attraction was a novel machine invented by the enterprising manufacturer of Woodbridge, John Abell. This is a very ingeniously contrived affair, and will, if it works as it promises to do, supply a want much needed. It is adapted to cut an open ditch or drain for laying tiles. It will cut a ditch three feet deep, nine inches at the bottom and thirteen inches at the top. It is a very powerful machine, and strongly made. The driver rides on a sort of platform, and appears to have perfect control over his work, and can raise the cutting part away from the driving wheel, if it gets clogged, and remove the obstruction. This cutter cuts a furrow while the wheel referred to scoops out the dirt and carries it to a sort of deliverer at the top, which throws it on one side. The horses walk on each side of the ditch, two being able to draw the machine in light soil, while in stiff ground four are required. The whole depth is not dug out at one operation, but the same length of ground has to be gone over several times to finish the work. This may seem a tedious process, but the makers say that the machine will complete a mile of ditching in a day. We had an opportunity of seeing it at work, and our first favourable impression was greatly strengthened. In clay, it works admirably.

There was also on the ground a drain-plough or ditching-machine, manufactured by W. Van Buskirk, of St. Thomas. Gilmer and Burkholder showed a powerful stump-lifter.

At some distance from these on the ground, though first in the prize art, and of chief importance in agriculture, were ranged the Ploughs, of which there was a good show both in iron and wooden implements. J. Morley, of Thorold, showed one of iron, one of wood, a subsoil plough, and a double mould-board plough. J. Condey, of Bartonville, was the successful competitor for the first prize. —Stephenson, of Nassageweya, exhibited a strongly made plough of polished iron, the share of which is very solid, and fastened without bolts. J. Yocom, of Walpole, T. Chisholm, of Paris, and G. McSherry, are exhibitors in this class. The last named showed a plough with a strong iron arch connecting the mould-board and share with the beam and handle, in such a manner that they can, when required, be easily separated for the purpose of repair. For this implement the second prize was awarded. The same maker showed one with a wrought-iron beam attached to wooden handles. The coulter is also fixed and adjusted by an iron buckle with set pin. J. Watson, of the Ayr foundry, sent ploughs with McSherry's patent combination of iron and wood just alluded to. James Walker, of Whitby, Atkinson Brothers, Etobicoke, J. H. Grout & Co., Grimsby, sent similar implements. The exhibitors of wooden ploughs were A. Yocom, J. W. Needs, of Bowmanville, J. N. Davis, J. Lowrie, Sarnia, T. J. Hind of Wallacetown, and J. Morley.

Subsoil Ploughs were exhibited by J. Morley, and Atkinson Brothers; Double Shear French Ploughs, by J. Watson and J. Needs; Double Mould Ploughs by J. Chain, of Guelph, and J. Morley. Massey, of Newcastle, and Turnbull & Co., of Hamilton, showed Gang Ploughs.

There were a few rollers, J. Watson, of Ayr, showing one with a grass and sowing attachment.

Iron and wooden harrows followed next on the ground. Of these there was a great variety; that manufactured by Israel Kinney, has a peculiarity in the jointing first shown by him last year, at Kingston, and since followed, it would appear, by several other makers. By the socket-joint the whole can be taken apart and put together again very readily, so as to admit of easy removing in a waggon. The whole is held together by chains. T. Alexander, of Glenwilliams, showed an ingenious contrivance which dispenses with nuts. The head of the teeth is perforated with a square hole into which a square rod is thrust from the end, (one rod fastening several teeth). This rod, or bolt, passes through a sort of sheath or barrel. From seeing these and similar alterations merely on the ground, one can scarcely judge of their merits; actual trial is needed to determine whether they are improvements or not. Isaac Westcott, Bowmanville, James Pringle, East Zorra, John Foster of Flamboro', and Carr & Roblin, of Lindsay, showed harrows of various make and excellence.

Hay elevators were shewn in operation, some on the harpoon principle, and others as horse pitchforks. Of the former sort, E. A. Benson, of Amelissburg, exhibited one with a fixed pully attached, which seems to be an improvement; the teeth are also longer than usual, and the whole is made of wrought iron. G. H. Abrams, of Gananoque, had another harpoon; and horse pitchforks were shewn by J. G. Pensyck, of Grimsby; James Garret, of Malahide; George Ash and Leonard Richards, of Mt. Hope. The Judges had an opportunity of testing the merits of these implements by seeing them work.

In turnip drills, both handbarrow and horse implements, there was fair competition. James Soulan & Co. had a corn and bean planter, no other of the kind being shown. J. Watson, of Ayr, J. Dodds, of Beverly, and W. Walker, of Hamilton, were the principal exhibitors,—the last-named gaining a first prize. The circuit of the fair ground, which has been followed in the foregoing notice, now brings us back to the neighbourhood of the steam engine and large machines. There were two saw machines here, one manufactured by Mitchell, of Millbrook, which gained the prize at Kingston, and in which several improvements have since been added, for which the inventor has taken out patents. Near this was a modest machine, invented by an amateur machinist, Mr. J. P. Clarke, of Yorkville, and called the domestic saw mill. It is a hand saw machine, working a circular saw, and seems well adapted for family use. The ingenious inventor estimates that it could be made for $15.

We come new to the Horse Hoes and Cultivators. Of these there was a great variety. Two-horse iron Cultivators were exhibited by J. Lawrie, of Sarnia, and I. Westcott, Bowmanville. One-horse Cultivators were shown by J. Watson, of Ayr, R. Gray, of Dundas, J. Lawrie, of Sarnia, Isaac Westcott, Bowmanville, and Turnbull & Co., of Hamilton. Two-horse wooden Cultivators were shown by several of the foregoing exhibitors, and by C. Welton, of Haldimand, whose machine is provided with a seat for the driver, a luxury which we are slow to introduce into Canada. John Grout & Co. exhibited also in this section, and B. W. Walton had a combined Cultivator and Seed Drill. F. & G. Morgan, of Markham, brought to the Hamilton Fair, and gained the first prize for, a two-horse Cultivator, for which a prize was awarded at the Paris Exposition. This has a good arrangement for adjusting the balance so as to remove the weight from the horse's neck. It also possesses another advantage, that the shovels can be readily taken off and the implement is at once converted into an efficient grubber. Massey, of Newcastle, showed Summers' grain chopper, and another was also shown by the inventor. The first prize for grain chopper was awarded to Waterous & Co., for their Mill already mentioned.

A novel machine was sent by Atkinson Bros., which they call a Land-presser, and which they contend is a complete substitute for the drill. It is intended to be used after ploughing to prepare the ground for broadcast sowing, which is to be followed by the harrow for covering the seed. The implement shown is furnished with two large wooden wheels (more may be added) which, as they revolve, leave the land in furrows at regular distances, with the soil nicely compressed. Most of the seed sown rolls into these furrows, and what little falls on the intervals is mostly dragged in with the harrow.

Next fellow seed drills, all said by their inventors to be the best, and to be perfect. One shown by Mr. Thomas Evans of London, is adapted to sow turnip seed as well as cereal grain. Mr. Scott of Dundas has a combination for sowing grass seed, as also had Maxwell & Whitelaw's drill, a machine that is largely patronised by farmers, and that gained the first prize in Kingston, and the second at the recent Exhibition. An excellent drill is also exhibited by James Seadall, of Oshawa. A drill which has been a great favourite in the United States, has gained the first prize at the New York State agricultural show, and been specially commended by the U. S. commissioner of agriculture, is manufactured by Andrew Crosbie, of Dundas, and was shown here. It appears to feed very evenly, the quantity of seed being regulated by the speed of the revolutions, and this by appropriate gear wheels. The feeding apparatus is peculiar, simple, and adapted to sow fine or coarse grains, even as large as peas. There is no stir rod in the hopper, and when it becomes necessary to clean this out, it can be done more readily than in other drills. The present is the first year of its introduction into Canada, but upwards of 7,000 were made during the past year in the States. For this drill the first prize and diploma were awarded.

A miscellaneous collection of implements occupied a long open shed in this part of the ground. Here was to be seen an excellent specimen of a horse hay rake. It is manufactured in the States by B. C. Taylor, and was exhibited by the agent for Canada, Jas. Soutar, of Chatham. It is called the Taylor Sulky Rake, and is a well-made, and, we believe, thoroughly efficient implement, light and strong, easily managed, and raking the ground very clean. We have seen the same in use in the States. The first prize was awarded to Yale & Co. of St. Catharines.

Maxwell & Whitelaw showed here some very excellent straw cutters, two of them adapted for horse power, and two for hand use. The same firm exhibited also a root cutter, imported, we believe, from England—at all events the patent is English, and the machine has long been in use there. It is a thoroughly good implement, and by reversing the action of the crank can be made to cut fine for sheep or coarse for cattle. It is light, and occupies little space.

J. Watson, of the Ayr Foundry, shewed a similar machine and several straw cutters, and an admirable machine for cleaning peas, which is, in fact, a miniature pea thresher. L. D. Sawyer & Co., and Hind & Roberts were also exhibitors of straw cutters. John Abell, of Woodbridge, showed an excellent grain crusher, which is well adapted to grind large or small grain and seeds. It is somewhat similar to Summers', but the grooves in the rollers are more oblique, and the motion of the second roller is more rapid than that of the other, so that the grain is cut as well as crushed.

Cider mills are shewn by Sells, of Bayham. These are too well known to need comment. This exhibitor received again the distinction of a first prize. James Scott, of Dunbar, sent one somewhat similar; and Thomas Walker, of Westminster, exhibited one of altogether different structure, with a canvas attachment to strain the juice after the operation of grinding and pressing.

A number of washing machines were, as usual, on exhibition, and their inventors claim immense advantages for them. George Baker, of Oakville, showed one which in appearance is something like a root cleaner. A sort of barrel formed of bars, with open spaces between, revolves in a trough. A number of wooden balls inside the barrels are designed to assist in the process of cleansing. P. Forfar, of Waterdown, showed another on a different principle.

Fanning mills were very slenderly represented in the exhibition, but a very good one was shown by W. A. Geroldamy, of Tara, Co. Bruce. It is well got up in every respect, but the distinctive features are a wire agitator which stirs the grain through the bottom of the hopper and prevents choking, a screw which nicely regulates the feed, and the use of perforated zinc instead of wire sieves.

A few farm waggons, in no way remarkable, and a collection of dairy implements, noticed elsewhere, complete the contents of the implement shed.

On the rising ground west of the large machinery a number of pumps were displayed, most of which were fixed in place over tanks that had been constructed for the purpose, and supplied with water by the exhibitors. Mr. Merrils, of London, Ontario, exhibited a variety of so-called telescopic lift and force pumps,

adapted for domestic use, or for feeding tanks or fire engine purposes. These machines are also made in Toronto by W. Hamilton & Son. Mr. Powell, of Newton Brook, also showed specimens of his now well known pumps—among them the patent swing pump and the Dominion force pump, the latter provided with a double air chamber, and throwing a powerful and steady stream of water. This is the only wooden force pump made in Canada. His patent adjustable hose, which is very readily removed or attached, is a very convenient appendage to these contrivances. Other pumps were shown by Hiram Land, of Port Nelson, and D. C. Ferguson, of Scarboro'.

Some ingenious fences occupied the highest knoll on the Fair Ground. Stephen Washburn, of South Dumfries, showed his portable picket fence, models of which were exhibited at Kingston last year. To one of these he attached a gate, the hinge and latch of which are both ingenious. The gate will swing either way, can be easily raised to be out of the way of snow, and is self-latching. He has also a machine for turning and sharpening the pickets. With the aid of this the work can be done so fast that the patentee is able to supply the fence as low as fifty cents a rod.

B. Greening & Co. exhibited several varieties of their patent machine-made iron wire fences, which are light, strong, and tasteful in design.

Gates appropriately came next in order on the ground. R. E. Stephens showed a small gate, of ingenious contrivance. T. T. Munger exhibited some ingenious slide, or, as he calls them, friction roller-gates, to one of which is attached a most admirable contrivance, by which a person driving through can open and shut the gate without leaving his vehicle. Farmers, and all who have to be their own coachmen in muddy weather, will appreciate the convenience of this invention. Over the top bar is fixed a cog wheel, and in the bar a number of notches; a long iron rod or axis projects from the wheel on each side to a sufficient distance to allow room for the horse and the vehicle between the driver's seat and the gate. This rod is kept in place against a post at the side, and is bent into a handle, by which the wheel can easily be turned, and the gate is thus made to slide back and forth. Capt. W. James, of South Norwich, exhibited an ingenious gate, which has the recommendation of being cheaply made, and of being readily lifted over snow. Mr. R. Lewis, of Melbourne, however, obtained first and second prizes for his gates, with which the readers of the CANADA FARMER are familiar, from the descriptions and illustrations which have appeared in the issues of Sept. 2, 1867, and Sept. 1, 1868.

Other farm tools were to be seen in the Crystal Palace, and a few in the Horticultural shed. Among the former, Messrs. Whiting & Co., of Oshawa, had an excellent assortment of scythes, of different sizes, on exhibition. Three distinct kinds are made for grass, and the same number for cradle reaping. They had also well-arranged assortments of hoes and forks, among them socket forks and hoes, manure forks, with the strapped and the common ferule, and other agricultural implements. Mr. W. Lutes, Townsend, Ont., to accompany these, had several sets of very handsomely-finished axe-handles on exhibition. Mr. P. Washburn showed others, which were of excellent quality.

F. Johnston & Son, Elgin, were exhibitors of an assortment of tool handles of all descriptions, comprising hammer, axe, and sledge hammer handles.

Mr. J. Honrigan, Dundas, had a number of very finely-finished chopping axes on exhibition, with a number of reaping and mowing machine blades—all exhibiting the very best workmanship.

The above is but an imperfect sketch; little more, indeed, than a bare enumeration of a very admirable show of implements, which we examined as carefully as limited time and the hurry of Exhibition work would allow; and if articles of merit have been passed by, their owners will, we are sure, exonerate us from any intentional neglect. The prize list, which we shall publish as soon as it has been officially corrected, will, in some cases, supply the omission.

Crops in Quebec.

To the Editor of THE CANADA FARMER:

The drought which so afflicted the rest of Canada was continuous here for at least six weeks, around Quebec. It was, however, local, for during its height there were twenty-four hours' steady rain at Frampton, thirty-six miles from town. Also, in what are called *par excellence* the Eastern Townships, there was rain during the existence of the drought which prevailed in the neighbourhood of the city. The result is that the country generally has not suffered so much as was feared, and hay is rather low, ranging from seven to ten dollars a ton. Since the drought we have had beautiful dropping weather with warm winds, which have kept back Jack Frost so far, although he generally visits us before this.

What little wheat is grown about Quebec is most excellent, clean and heavy. Oats are a good crop, and are nearly all in. Turnips are a short crop, but are growing fast. The potatoes have too much top, but are quite healthy, and will certainly be an average crop. It is perhaps a strange idea to start, but I do believe people about here manure potatoes and meadow *too heavily*. The result with regard to the former is, that they are rank and will not keep. Cabbages are a failure, on account of the white butterfly. Would it not pay *well* for every county to purchase dead butterflies, at so much a hundred, of little boys? It would certainly be better than waiting for the eggs to develop to caterpillars before removing the evil. *Obsta principiis* should be the motto with regard to all these evils.

Among the crops that grow well down here are French beans. These should be more extensively grown, for they are a sure crop, unaffected by any insect, they produce a plentiful crop, and fetch a good price. But oh! how slow we are down here! These things command two dollars a bushel on the line, where the Americans buy quantities of them, and yet, not a *pint* of them ever leaves the Quebec market! Surely some old country man might find energy enough to grow half an acre of them as an experiment. They make an excellent winter dish by being soaked twenty-four hours or more before being boiled, slowly, till sett. Well done, they are excellent. Badly cooked, they are abominable.

Honey is good, but not so plentiful, on account of the dry weather. We have a flower show in progress, about which I will write next week.

PHIALA.

Quebec, Sept. 10, 1868.

NOTE BY ED. C. F.—Will the writer again favour us with his name and address, which we have unfortunately mislaid? We have not omitted to insert any communication which we have received, so that it appears his "last" has never reached us.

The Dairy.

Dairy Implements and Products at the Exhibition.

THERE was but a small display of dairy implements, showing some ingenious and most important inventions, truly, but in the number of articles falling short of the last two exhibitions, and by no means well representing the dairy interest of the country. Among the novelties in this class was a milk cooler, invented by Mr. C. G. Cody, which promises to supply a long-felt deficiency in the manufacture of cheese. By this apparatus the liquid poured into a sort of hopper, with a narrow slit along the bottom, falls in a thin sheet in front of fanners, the blast from which, mixing with the fluid and scattering it in fine spray, at once reduces its temperature, and deprives it of the animal odour, which is apt to affect injuriously the quality of cheese. The President of the Canadian Dairymen's Association, D. E. Chadwick, Esq., has expressed a very favourable opinion of the merits of this machine, which has also, we understand, received the approval of one of the best judges in such matters, X. A. Willard, Esq., of Utica. D. Harris is the exhibitor of another very simple, but most useful contrivance, called the curd drier. It is a large wooden tank or vat with the bottom sloping towards the centre, along which there is a perforated tin strainer, over a conducting spout. This arrangement allows all the liquid to drain away from the curds without the necessity of using cloths, a material very difficult to keep in that state of perfect cleanliness which is so essential to dairy operations. This drainer has now been in use about one year, and is becoming very general in the Oxford county cheese factories.

F. L. Bungay, of Norwich, exhibited and obtained a prize for his very excellent cheese vat.

There was quite a large assortment of churns, with a variety of devices for lessening manual labour. Among the exhibitors was J. W. Goodson, of Hamilton, who showed a barrel churn, with lever power and perforated dasher, an effective-looking machine, which is sold for $3.50. C. Lewis, of Salford, had a lever churn, the lever working on a roller, and the motion of the dasher being thereby rendered perpendicular. There is a coil spring attached to the back of the lever, which raises it, and relieves to a certain degree muscular effort in working. C. Stone, of Ancaster, A. Lean, of Cayuga, C. W. Jones, of Percy, R. Dickhout, of Dereham, and T. Taylor, of Waterdown, were also competitors in this class.

A cheese press was shown by R. Whitlaw, of the Oxford Foundry, thoroughly well constructed, and favourably known to cheese makers. John Arnor, of Hamilton, had another on exhibition, which is furnished with an eccentric lever acting on the top of the screw, weighted as required, so as to secure a continuous pressure. The same maker showed another of simple construction, which is a lever press without the screw. He had also an ingenious hand curd mill, in principle very like the sausage machines now so much in use. The foregoing comprise nearly all the dairy implements exhibited.

There was a fair display of factory and dairy cheese, T. Ballantyne, of Downie, taking the prize for the former, and T. McLaren, of West Flamboro', the first for the latter kind. Mr. Parsons, of Guelph, obtained a prize for his meritorious Stilton cheese. The competition in butter was pretty large, and the contents of some of the firkins and crocks of first-rate quality, such as rarely, if ever, finds its way into the Toronto market. The sample sent by Mr. Thompson, of Beverly, well deserved the prize awarded. This is a branch of the dairy interest that is a disgrace to Canada, and the meritorious exceptions deserve special praise. It would be well if some associated system like that of the Butter Factories in the United States could be introduced into the Province, so that the business might be conducted on scientific principles, and the markets of our large towns supplied with an article that would consign the execrable compound now vended to its more legitimate and ignoble uses of greasing rough machinery and waggon wheels.

The Apiary.

Bees and Bee-Hives at the Exhibition.

THERE was more than the usual amount of competition in this department. The principal exhibitors were A. D. Bacon, of Bayham, S. H. Mitchell, of Blanchard and J. H. Thomas, of Brooklin. The hive exhibited by S. H. Mitchell, of Blanchard, is like the Thomas and Bacon hives, constructed upon the movable-comb principle. The frames, however, are novel in their construction, being somewhat of a triangular form. Mr. Mitchell handled his bees with considerable skill, and is quite an enthusiastic bee-keeper.

J. H. Thomas, of Brooklin, as heretofore, had a large display of hives and bees, among which we noticed a very large and populous stock of Italians, and an observing hive containing a very beautiful Italian queen. We also observed some eighteen or twenty small boxes, which Mr. Thomas informed us contained Italian queens for sale. As usual, large crowds gathered round this stand to examine these very popular hives, and listen to the information given concerning the nature, habits and management of bees.

A. D. Bacon also exhibited several observing hives, containing bees and an Italian queen; we noticed, however, that his bees were hybrids.

Mr. Thomas again obtained the first prize, which he well deserves. He also received an extra prize for Italian stock, and another for Italian queens. The second prize for hives was awarded to S. H. Mitchell, of Blanchard.

It is pleasing to notice a growing interest in this direction, as was still further evidenced by the large display of honey, which was far greater than at any previous exhibition; there being eighteen exhibitors of honey in the jar, and eleven of honey in the combs. It certainly must have been a difficult task for the judges to determine which among several of the jars exhibited was worthy of the prize. The awards made by them were to the following gentlemen, in the order in which they are named:—For honey in the jar, Thomas Kirkland, Oneida; S. H. Mitchell, Blanchard; W. Ptolemy, Binbrook; G. W. King, Pembroke. For honey in the comb, H. M. Thomas, Brooklin; James Kirkland, Oneida; G. Bennett, Cobourg; and S. H. Mitchell, Blanchard.

Canadian Natural History.

The Crested Grebe.

(*Podiceps cristatus.*)

THE Grebes belong to a small group of birds, placed by some naturalists in a sub-order by themselves, intermediate between the Waders and Swimmers; but there is scarcely sufficient distinctive peculiarity to warrant their separation from the latter order, *Natatores*, to which they naturally belong. They are included in the family of Divers (*Colymbidæ*), the largest and most remarkable of which, the Great Northern Diver, has been described and illustrated in a former number of the CANADA FARMER. The Grebes, however, form a sub-family, which is distinguished by the toes being margined with a membrane, usually lobed or scolloped in its outline.

We have three native species, the largest of which is represented in the accompanying illustration. The crested Grebe is readily recognized by the peculiar appendage to its head and neck. The latter, or ruff, is peculiar to the male bird,—the two tufts of feathers on the head mark both sexes. This is a handsome-looking bird, measuring from eighteen to twenty inches in length. It possesses the characteristics of the genus in the bill of moderate length, straight, robust and pointed. The nostrils are broad. The neck is long and slender. The feet are placed very far back; the tibia, or leg bone, very short, and feathered to the joint, and almost hidden by the belly. The inner and middle toes are connected by a web, as far as the first joint. The female is of a lighter brown, approaching to grey. The sides of the head, as well as of the body, are tinged with a reddish hue. The chin and front of the neck are white, shading off to grey on the under part of the body. The tufts on the head and the ruff are, in general, black, tinged with green; the upper part of the ruff is of a reddish brown.

Like all water-fowl, this is a very shy bird, and chiefly frequents secluded ponds and inaccessible marshes, where, among the reeds, it forms its nest, and lays about four yellowish-white eggs. The young are very pretty little birds, covered with soft downy plumage, and boldly striped with grey and black from beak to tail.

Another and more common species is the Horned Grebe, (*Podiceps cornutus*) commonly called Dipper or Diver, a much smaller bird. This is a most active creature, defying most of its foes, even the arch enemy, man, by the lightning-like rapidity with which it disappears and dives beneath the surface of the water, where it will remain for an astonishing length of time, to emerge again, for the purpose of breathing, at some distant and unexpected quarter. It is no easy matter to shoot these birds; so rapid are their movements, that almost in the instant of time between the flash of the fowling-piece and the contact of the pellets with the water, they are down below "like a shot," as the saying is, and the disappointed sportsman perceives the water disturbed by the contents of his gun exactly in the right spot, but no bird dead or alive is to be seen. The flesh of these birds is sometimes eaten, but has a fishy flavor, which renders it unpalatable to most people. The feathers on the breast have come into very extensive use as ornamental trimming for various articles of female attire. A third species, the Red-necked Grebe (*P. rubicollis*) is rare in Canada.

Natural History Department of the Exhibition.

THIS very interesting department had the smallest exhibition that we remember having seen at any Provincial Exhibition; in fact the principal sections or classes of natural history were not represented. There was not a single entry of mammalia, birds or fishes; whether this was owing to the small amount awarded as prizes, or that our principal contributors to this department for this section of the Province, viz: Mr. Passmore, of Tronto, and Mr. McIlwraith, of Hamilton, are contented to rest on their laurels, it is difficult for us to say. We recommend, however, in future, that these gentlemen do still contribute to a department which is always so full of interest and importance to the visitors.

The collection of Canadian insects was very meagre, but we noticed the very fine cases of foreign insects sent from Toronto by Mr. Goswold. The moths and butterflies were collected on the Himalaya mountains, and probably are the most gorgeous in appearance that have ever been exhibited.

Mr. Wright, Hamilton, exhibited a very good collection of native minerals, for which he was awarded the first prize. There were also some very fine specimens of sulphate of baryta and lead ore, from the Galway mine, in the County of Peterboro.

Canadian plants were represented by a very fine herbarium, in a most excellent state of preservation, exhibited by A. Logie, of Hamilton.

There were a few small articles of natural productions, but none of importance, with the exception of some fine specimens of rock salt, for the use of horses and cattle, imported by Messrs. Hendrie & Co. of Hamilton.

Stock Department.

Stock at the Provincial Exhibition.

FOR the accommodation of the large number of animals entered in this department of the Exhibition, considerable alterations were made in the buildings on the show ground, and several new structures were erected. South of the Crystal Palace is an oblong plot of ground, in the centre of which an ample space was railed round for a horse ring, and beside this a smaller circle was set apart for a cattle ring. The three sides below the building were occupied as sheds and stables, those on the east side being appropriated to the shorthorn cattle; while along the south and half the west sides the stalls, provided with close doors, and forming very good stabling, were set apart for the horses, and the remainder, on the west side, for Hereford cattle. These buildings were all erected against the boundary fence, and were open only on one side, looking inwards. For the accommodation of the other breeds of cattle, spacious sheds had been erected west of the main building. These were divided into two rows of stalls, one on each side. The first of these was set apart for Devons; next to these was a similar shed, devoted to Ayrshires along one side, and Galloways and Angus cattle on the other. The pigs were accommodated in a similar long shed, with a double row of pens, one on each side. The sheep occupied pens along the eastern side of the grounds. The shed for the poultry was a very suitable structure, erected north of the building, and very near it; it was enclosed on all sides by slats or battens, and tightly roofed in. The accommodation was ample, convenient, and well sheltered from the weather, and the general arrangements were excellent. We proceed now to notice the different classes of stock, in their order on the prize list.

HORSES.

The show of horses on the whole was exceedingly good, and highly creditable to any exhibition. In the class for blood horses, however, the number of entries was very limited. The principal exhibitors were the Messrs. White, of Bronto. In the aged class, Mr. Waddell, of Hamilton, headed the prize list with "Rurie," a very fine bred horse, and by far the best specimen of a thoroughbred in his class. Some of the blood stock wanted substance.

In the second class, for agricultural horses, the show of aged stallions was very good. Mr. Ferris was again successful with his black horse. No doubt he is a very fine animal; yet it is our opinion that the chestnut imported horse, owned by Mr. Hawkins, of Markham, although he failed to secure a prize, was the best and most valuable animal in his class. He shows many excellent points, and is certainly deserving of notice. He was imported last season by Mr. Cochrane, of Montreal, who is deserving of all praise for his continued enterprise in bringing to this country such valuable animals.

Mr. Ferris also gained the diploma for the best horse of any age.

The brood mares and young stock generally, although a few very superior animals were exhibited, were not quite equal to former years. Mr. Armstrong, of Vaughan, and Mr. Berth, of Darlington, gained respectively the first and second prizes in the class for brood mares, and both were good specimens of the general purpose horse. In the class for the two-year olds, we observed a very fine mare, belonging to Mr. Smith, of Glanford.

There were twenty-two entries in the class of matched horses for agricultural purposes. Some very fine horses were shown. Mr. Coyne, of Trafalgar, was successful in obtaining a prize. Mr. Hendrie, of Hamilton, and Mr. Hall, of Blenheim, also showed excellent teams.

The heavy draught class was well represented, and many very fine specimens were exhibited. There were two imported three-year olds worthy of particular notice, one of them owned by Mr. J. J. Fisher, Colborne, and imported last season from Lincolnshire, England. The other was imported from Dumfriesshire, Scotland, and is the property of Mr. Thos. Evans, Blanchard; both of these animals showed symmetry and action seldom to be surpassed in this class.

The two-year olds were also very fine, and in this class, Mr. J. Thompson, of Markham, showed one imported last season.

Mr. J. Davidson, Pickering, had a very fine imported brood mare which has won many prizes in former years, and will yet, we believe, stand well forward on the list of prize-takers. He also exhibited an excellent two-year old filly out of the above mare. The latter obtained first honours. Among the principal exhibitors in this class were Mr. McFarlane, Pickering, who showed a one-year old colt, and Mr. Docherty, Scarboro, who had a good three-year old, bred by the late Mr. Torrance, Scarboro.

For aged stallions, Mr. Harvey's brown imported horse "Champion" gained the first prize, but competing for the diploma for the best horse of any age, he was beaten by a younger rival, already noticed. Brood mares and young stock were not so numerous as we have seen in former years.

For the best pair of heavy draught, Mr. Cochrane, Montreal, gained the prize with his pair of imported Suffolk mares, aged respectively three and four years. The heavy draught, as a class, were decidedly good, and it would be a very difficult matter to surpass them at any exhibition in Great Britain. In fact, many of the premium animals on the ground were imported, and have carried off principal prizes at exhibitions both in England and in Scotland. It is gratifying to find the spirit and enterprise of many of our Canadian farmers in importing such valuable stock, which in after years will be of universal benefit to to this country.

The carriage and driving horses were in great numbers. Mr. Davis exhibited his pair of black mares which has carried off the first prize on two former occasions. Mr. Irish, of Toronto, also showed a pair of excellent carriage horses. In the class for single carriage horses, Mr. Hendrie, Hamilton, showed a very fine bay gelding, which for action and substance can scarcely be equalled. He also exhibited a very fine saddle horse.

Of aged stallions there was a very fine show. There were about twenty animals on exhibition, and the whole of them first-class animals, many of them combining both symmetry and action, seldom to be seen. Mr. Douglass, of Oakridges, showed two very fine animals descended from the Old Royal George stock. Mr. Murray, of Toronto, exhibited Coachboy, who has stood high in the prize list in former years. Mr. Roach, of Hamilton, had a very fine animal, which the judges put first on the list; he is by Royal George out of Reindeer mare. Mr. Tench, of Niagara, was awarded the second prize, and Mr. Ellis, Hamilton, the third. The three year old stallions were a fair show. In this class, Mr. E. N. Orr, Georgetown, carried off the prize with a very nice-looking brown horse. There were several good pairs exhibited; but the general show of carriage horses was only middling.

CATTLE.

The show of cattle must be acknowledged by all capable of forming an opinion on the subject, to have been one of the best, if not the very best, we have ever had at a Provincial Exhibition. No fewer than 320 head were on the ground, and it says much for the growing appreciation of the Durhams, that nearly one-third of the number were of that deservedly popular breed. Including the grades, most of which are dashed with short-horn blood, more than one-third were of this breed. Of pure Short-horns, there were 97, and nearly all of them were choice animals. It speaks well for the judging at former shows, that inferior animals are now for the most part kept at home. It was a very delicate and difficult matter for the judges to decide in some of the classes on which of a number of animals of nearly equal excellence to bestow the honours. In other classes, the decision was of course very quickly made. The class of two-year old bulls was pronounced by the judges, and others, whose opinion is entitled to respect, the best ring ever collected on this side of the Atlantic. Had the three prize takers been removed from this class, it would still have been considered remarkably well represented. The judges would have liked, had it been possible, to have given all the animals a prize. The bull calves were another capital class, and contained no fewer than 17 competitors. Mr. Stone's "Grand Duke of Morton" is at the head of the list in aged bulls, and Mr. Cochrane's "Rosedale" in aged cows. Two of the last-named gentleman's recent importations, a yearling bull, and a heifer calf, attracted much attention, while there was much disappointment that the one thousand guinea heifer was not on the ground. Mr. Christie's herd was conspicuous only by its absence. Mr. Snell had a number of very fine specimens on the ground. So also had Mr. John Miller. The Devons and Galloways and Ayrshires were in nearly equal force and quality. Some 25 good Herefords were shown. Three Angus cattle only were exhibited. Twenty-four grades, the best among them owned by Mr. John Miller, showed the effect of short-horn crosses on our native stocks. Some very fair working oxen were shown, two pairs of high Durham grades being especially excellent. There were very few fat cattle, a huge steer bred by Mr. J. Vine, of St. Catharines, being the most remarkable. This animal was purchased by Mr. J. Britton, of Toronto, for $400.

In proceeding to give a somewhat more detailed account of this department of the Exhibition, we may observe that the plan adopted of having a separate ring for showing each breed while being judged has been found a great convenience to all concerned. In the centre of each ring a post is planted, from which there swings after the manner of a signboard the name of the particular breed of cattle to which that ring is devoted. Posts and ropes prevent spectators from crowding in upon the judges while in the performance of their duties, and enable a large number of persons to get a good view of the animals exhibited. To estimate fairly the comparative merits of the competing specimens, it is needful to see them side by side in the open air. Passing from stall to stall gives but a poor opportunity of coming to an intelligent and just opinion of the various animals. As, however, the judicial process goes on with the several breeds simultaneously, and unfortunately are not ubiquitous, it was impossible for us to see all the cattle under the most favorable circumstances. We therefore naturally concentrated our attention upon the Short Horns. Each year makes it manifest not only that this valuable breed is continually rising in public favor, but that our leading breeders, instead of being satisfied with past results, are constantly aiming at a higher standard of excellence. To possess the best specimens of this breed in America is not glory enough for them. They are ambitious of competing with and excelling the Short Horns produced in their native haunts. It is undeniable that some of the finest animals bred in Britain have been transferred to Canadian pastures, and the foundation laid for herds that may yet rival some of those that have become historical and famous such as we have ground to expect from not a few of our breeders—we may look forward to high distinction, if not victorious laurels, in the Short Horn ring of the world. There is, however, one serious difficulty to be overcome. Such are the traditional requirements as to the condition of Exhibition animals, that breeders find it necessary to feed them to a degree that is incompatible with their fullest efficiency in the parentage of choice stock. To be distinguished both in the show ring and the byre, a cattle breeder would need two sets of animals—one fed up to the exhibition mark and another kept down to the breeding point. Hon. David Christie assigns this as the reason why he has not shown his fine short horn herd for two seasons past; and on the same ground we understand Mr. M. H. Cochrane intends to withring, that in the quiet and retirement of domestic life at the farm she may bring forth descendants that shall maintain and even outshine the fame of their dam.

It is much to be desired that by some carefully framed rule as to the condition of exhibition animals this difficulty could be got rid of. As it is, breeding and showing are conflicting interests—a thing exceedingly to be regretted. If, however, this evil is to be remedied, some rule of uniform and impartial application must be adopted, since any single breeder would show under fatal disadvantages if his animals were sent into the ring in ordinary breeding condition to compete with highly fed rivals.

As already observed, the Short Horn department must be acknowledged to have made a very fine display. Among nearly a hundred animals of high general excellence, it is manifest that only a few can be particularized in such an account as this. But it would be unfair to conclude that those not specially noticed are unworthy of mention. Had a smaller number been shown, more in proportion would have come in for particularization. In the class of aged bulls there could be no question as to the superiority of Mr. Stone's Grand Duke of Morton. Mr. John Miller's Prince of Bourbon is a meritorious animal, and deservedly took the second prize. There were eleven entries in the three year old class—the first prize-taker being a fine bull sired by Oxford Lad and bred by J. Cowes, Esq., of Waterloo. His present owner is Mr. George Wood, of Downie. The two-year-old bull class was a very difficult one to judge, from the large number of superior animals comprehended in it. There were fourteen entries, every one of which was worthy of a prize. The animal that took the highest honors was imported by Mr. Snell, from Kentucky,. He was bred by Mr. Abraham Reneck, and is owned by Mr. William Collum, of Hayesville. The yearling bulls were a good class, though not equal to the two-year-olds. Bull calves to the number of seventeen were exhibited, and were felt to be a hard class to judge, from the uncertainty of development in animals of so early an age. An imported calf of Mr. M. H. Cochrane's won the first prize. Not the least perplexing competition was that for the sweepstakes. Mr. Stone's bull, the Grand Duke of Morton, gained the enviable distinction, but many thought Baron Booth—Mr. Cochrane's imported yearly—better entitled to it. He is certainly a young bull of remarkable excellence and great promise. In aged cows, Rosedale, of course, distanced all competition. Mr. Cochrane, in importing this magnificent cow, walked at once to the highest place of distinction in her class. Mr. Stone's Maid of Guelph, and Mr. John Miller's Lorena, followed next in order. In the three-year-old cows, the judges astonished most people, and nobody more than the fortunate owner, in giving the first prize to Gola, a recent importation of Mr. Jno. Miller's. "Blood will tell," and this cow being of nearly pure Booth blood, could not be put in any other position than the first. But for this she would have changed places with Mr. Cochrane's Maid of Athol, which was awarded the second. Mr. Stone's Isabella XII won the third place of honor. In the two-year-old class, Nelly Bly, a beautiful heifer, the property of Mr. John Miller, won the red card, and the distinction was grudged by nobody whose opinion is worthy of regard. She is an importation from Illinois, and if she does well will be heard from at future exhibitions. Mr. Cochrane's Miss Margaret Third, bred by Mr. Stone, took the second prize, and Mr. Stone's Cambridge Eighth, the third. The yearling heifers were a very fine class; Mr. Snell's Clara Barton, a very pretty animal, heading them by all odds. Mr. G. Robson's Fannie, third; and Mr. Stone's Miss Margaret Fourth followed suit. The heifer calves comprised fourteen first-rate specimens; Mr. Cochrane's recent importation of Wharfdale Rose got the first premium; she was sired by the same bull as Duchess 97, the 1000 guinea heifer, and cost 100 guineas; she is a heifer of grand promise, having a splendid chest, broad escutcheon, and other fine points. Mr. Stone took the second and Mr. Snell the third prize in this class.

The Hereford classes comprized a very select lot of animals. Mr. Stone is no longer left alone in his glory with this breed. Mr. Cochrane competes with him very sharply, though it must not be forgotten that Compton Lad, the finest specimen in his herd, and perhaps the most perfect bull of any breed on the ground, was bred by Mr. Stone. Mr. W. Perdue, of Chinguacousy, had the high honor of winning from both these gentlemen the first prize for aged Hereford bulls and the sweepstakes; his Sir Benjamin is a noble animal; he also was bred by Mr. Stone.

The Devons and Ayshires comprehended a number of meritorious animals; indeed the show in both these classes was of great excellence, and we regret that we cannot now go more fully into details. Some really beautiful animals were shown by R. Spooner, of Kingston, W. & J. Peters, of London, H. Spence, of Brooklin, and other successful exhibitors. In the Ayshire class Mr. W. Wheeler, of Woburn, was the most distinguished exhibitor, and gained fresh laurels for his choice herd of this useful breed. Most of the

Galloway honours were carried off by Guelph, and were divided pretty nearly equal between Messrs. T. McCrae and Wm. Hood.

The chief interest in the competition among cattle-breeders centred in the PRINCE OF WALES' PRIZE.

This was offered for the best herd, one male and five females, of any breed. Second and third prizes were offered by the Association. Fourteen entries were made for these prizes, but only six herds came to the scratch. Mr. Stone, of Guelph, showed a short-horn and Hereford herd; Mr. Cochrane, of Compton, did the same; Mr. John Miller, of Pickering, showed a shorthorn herd; and Mr. W. Hood, of Guelph, a Galloway herd. The Judges had a long and thoughtful time over this prize, and finally awarded the Prince of Wales' Prize to Mr. M. H. Cochrane's herd of shorthorns, the second prize to Mr. John Miller's herd of shorthorns, and the third prize to Mr. F. W. Stone's herd of shorthorns. The reasons for this decision will be gleaned from the following remarks, appended by the Judges to their award:—

"In reference to the Prince of Wales' Prize, the Judges make the following remarks: The committee have had great difficulty in coming to an accurate conclusion as to the superior merits of the herds submitted to their inspection, on account of the different breeds of animals competing on equal terms with each other; the different breeds submitted, viz., Shorthorns, Herefords and Galloways, each of the three possessing valuable qualities. Such diverse breeds should never be submitted on equal terms for prizes. Each are valuable for certain soils and surfaces of our country. The Shorthorns are, beyond question, the most popular, and probably the best breed of cattle with the majority of our stock breeders and graziers: yet there are large districts of country where they prove inferior to either the Herefords or Galloways. So with either of the latter herds—each of them the best of their kind. Suffice it to say we have given our awards under most embarrassing circumstances; and, had we fully considered the difficulties of the case before us, we would have hesitated to act on this committee.

"Under all circumstances, we beg leave, with due respect to the better judgment of the Managers of the Board of Agriculture, to suggest that hereafter prizes be offered for the best herd in their general classes, and that each herd be exhibited in a class by themselves, under whatever names they may be known."

SHEEP.

There was a fine display of sheep, especially of the Leicester and Cotswold breeds. Indeed this department of the Exhibition was unquestionably in advance of all preceding shows; and it is doubtful if so valuable and choice a collection was ever before got together west of the Atlantic. Owing to the peculiarly unfavorable season just past, there were very few lambs on the ground of any breed, and they were mostly under size. During the unprecedented hot and dry term, ewes could get no grass, and the lambs were not able to take any food but milk. Most of our flockmasters were obliged to eke out the scant pasturage by resorting to cured clover and meal as in the winter time. A few unusually good lambs that were shown owe their superiority to extra feeding of the ewes, and extraordinary painstaking. The older sheep generally had a healthy, thriving look, notwithstanding the torrid ordeal through which they had passed. As usual, there were some over-fat specimens; but for the most part no complaint can be justly made on this head. There is no perceptible appearance of improper shearing, and if it has been practised at all, it has been done so adroitly that it cannot be detected even by experts. So far as Leicestors and Cotswolds were concerned, the look of the sheep and the alleged date of shearing corresponded. The firm application of the excellent rule of the Association on this point has already wrought a most satisfactory improvement—rather a complete reform.

The Leicester classes must have given the Judges much perplexity from the uniform excellence of many of the specimens. Two pretty distinct types of this breed were shown by our flockmasters—the original and strictly true Leicester sheep, and the improved Leicester, obtained by crosses with animals of larger frame and longer and more lustrous wool. The Lincoln is the favorite for this cross, though there is reason to suspect that in some cases the Cotswold is resorted to for the purpose. These long lustre-wooled sheep are demanded by the American trade. It is this combing wool that United States manufacturers want, and had we a reciprocity treaty our flockmasters could sell a very large number of breeding animals of this sort. As representatives of the normal type of Leicesters, a pair of two-shear sheep imported by Mr. W. Oliver may be mentioned: they were bred by Miss Stark, of Mollinden. This lady is considered to rank about second among the Leicester breeders of Britain—Lord Powell, of Merton, near Kelso, taking the lead. Mr. Oliver's importation is a very choice one; and these animals, for symmetry and fattening tendencies, could not be surpassed, though they lacked the length and lustre of wool above mentioned. Mr. Cochrane had also several imported Leicesters that were very choice specimens of the breed as found at home. Mr. Snell, of Edmonton, had a very fine lot of improved Leicesters that might be taken as models of the sort of animals demanded by the trade of this country. Could we particularize we might mention several of his sheep—especially some very fine shearling rams—that deservedly attracted much attention. A very fine two-shear ram has just been sold by Mr. Snell for $250 to Mr. George Robson of London township. An aged ram imported by Mr. Kirby, of Milton is a very fine animal. Mr. John Scott, of Lobo, had some of the best ewe lambs this year has produced. Robert White, of London, had a very fine lot of Leicesters, of various ages—twenty-two in all. Mr. B. Charlton, of London, showed a pair of handsome ewes, and a very pretty pair of twin ewe lambs. Mr. C. Walker, of London township, who may be called the Leicester patriarch of Canada, had seventeen very nice specimens. A pair of his lambs excelled all the others on the ground, and the ewe lamb would be hard to beat any year, however favorable. Mr. Kirby, of Milton, had a fine lot of Lincolns and Leicesters. For want of a distinct Lincoln class in the prize list some Lincolns were merely ticketed as "extra entries," while others were shown among the Leicesters. Among the Cotswolds the first place must be assigned to the imported animals exhibited by M. H. Cochrane, of Compton. His aged ram is a splendid animal, and, what is a feature of great merit, not too fat for service. The same may be said of his ewes. These animals ought to have had the first honors; but they were given to an over-fed, though well-built, ram of Mr. Stone's, and to a pair of ewes that are advanced in life, past breeding, fed for the butcher, and fit only to be shown as fat sheep. Mr. Cochrane's shearling ewes took both first and second prizes. Mr. John Miller had a fine lot of imported Cotswolds. Indeed, this is one of the most valuable importations of sheep ever made into Canada. They consist of fourteen shearling rams and twenty ewes. All the rams were on the ground, but only five of the ewes were shown. These choice sheep are from the flocks of Messrs. Garne, Lane, Hower, Tems, and Gillet, all noted Gloucestershire breeders of Cotswolds. One of these rams has been sold to Mr. J. J. Dodge, of Ashtabula, Ohio, for $220. This gentleman also bought two ewes of Mr. Cochrane's, we did not learn at what figures. Mr. Cochrane has imported no fewer than forty-five Cotswolds the present season, and is certainly worthy of all honor for the spirited manner in which he is pressing his way into the lists as a breeder of first-class stock. In Southdowns, Mr. Stone deservedly carried nearly all the prizes. He has, indeed, a beautiful collection of this breed of sheep. A few very nice Shropshire Downs were exhibited, the imported animals owned by Mr. Cochrane taking the lead very decidedly. A pair of two shear ewes of this breed are the gems of this flock. An aged ram is a good animal, but rather Southdownish in look. This remark applies to the collection of Shropshire Downs exhibited by Mr. H. H. Spencer, of Brooklin. They are a fine lot of sheep, but partake very visibly of Southdown characteristics. The Cheviots did not nor do not show face at all; and the Merinos were but slenderly represented, Mr. Smith, of Burford, and Mr. Jamison, of Vaughan, carrying off the largest share of prizes. This notice is but meagre of the various sheep classes. To have done justice to the several meritorious individuals would require our whole sheet.

PIGS.

This department of the exhibition, so far at least as numbers are concerned, was quite below what it ought to be in a situation so central as that of Hamilton. It is natural to expect a show numerically inferior at Kingston, which approaches the eastern borders of the Province, and yet the number of animals in this class exhibited there last year exceeded that of the recent exhibition. It is evident that the chief attention of our stock raisers is devoted to the nobler animals, and that the hog has rather been neglected in Canada. There were, however, some good specimens here of the various breeds of swine, and the enterprise of several exhibitors, and especially Mr. George Roach, of Hamilton, in importing fresh stock, is highly to be commended.

In the large breed section the Yorkshires come first, and here among a few meritorious specimens there were some coarse animals that might suit the requirements of breeders in the Western States, perhaps, where size and weight for the market are more considered than symmetry and quality, but which would have a bad influence on Canadian stock. The principal exhibitors in this section were J. Brodie & Son of Prince Edward County. They showed six animals and gained five prizes. The best boar over one year, shown by them, was imported from the United States, where last year it obtained the second prize at the New York State Fair in Buffalo. Both it and that which gained the second prize are splendid boars, though the first was not equal to the latter in condition, nor indeed, to our thinking, in other points. Their young sows were also fine animals. Mr. J. J. Biggar, of Trafalgar, showed a fine boar. J. Featherstone, of Toronto, and J. Main, of Trafalgar, and W. Bethel, of Thorold, were also meritorious exhibitors in this class; but we decidedly preferred Mr. Main's Berkshires and Suffolks to his Yorkshire pigs.

In large Berkshires there was a considerable falling off in the number of entries, owing, perhaps, to a growing preference for the smaller breed of improved Berkshire. These animals were not kept sufficiently distinct, but were mixed up with others in a way rather confusing to visitors. J. H. Laurie of Barton was the principal exhibitor, and came off with the lion's share of honors in this section. John Corrie of Dereham, another successful breeder, had also some fine animals of this breed, and obtained the first prize for a well-built and good-looking sow, in too high condition for breeding purposes, however, which is perhaps a disadvantage always more or less incident to female show animals. These well-bred Berkshires also take on fat with a very little encouragement. R. Spooner and J. Featherston, of Toronto, and Hugh Dempsey, of Downing, had good specimens of this variety.

Other large breeds, crosses apparently of Chester or Yorkshire and Suffolk, were shown by Messrs. Main, Featherstone, Roach, Biggar, Marshal (Hamilton), Grant (Hamilton), and W. Thompson of St. Catharines. A large and very fine sow (for which a first prize was awarded,) shown by Mr. George Roach, of Hamilton, was, we understood, a recent importation.

In small breeds the Suffolks were well though not numerously represented. The most noteworthy animals in this group were a boar and sow imported from England by Mr. Roach, and which are desirable acquisitions to the country. J. Main, of Trafalgar, was also in force here, and deservedly gained several first prizes. J. Featherstone and Husband divided the remaining honors.

The improved Berkshires were here in larger numbers than any other special variety, and amongst them several excellent specimens deserve notice. Mr. Roach is an importer in this class also, and he exhibited two beautiful animals, recent acquisitions from England—a young boar and sow, which deservedly took first prizes. John Corrie, of Dereham, long known as a successful breeder of this variety, had here some choice specimens; in particular a young sow, which took the second prize. Some of the stock shown by other exhibitors were also either purchased from him, or the progeny of hogs raised by him.

Mr. John Snell, of Edmondton, was an exhibitor in this class, and showed a remarkably fine young boar, only six months old, but with promise of a very fine animal. It gained the second prize, being distanced only by Mr. Roach's older and imported boar. John Crumb, of Darlington, showed one of the best boars on the ground, bred from Mr. Corrie's stock. A sow from the same litter obtained a second prize. Mr. Featherstone, Mr. Stone, of Guelph, and Mr. C. Jones, of Ancaster, also showed some good specimens of the breed.

The remaining section—Essex and other small breeds—had very little Essex to show; indeed most of the animals exhibited under this head were Mongrel Suffolks. Mr. Roach showed the only Essex hogs, and they were very good. Messrs. Main & Featherstone were exhibitors in this class. Mr. Thompson, of St. Catharines, showed the best boar over one year old, and Mr. Edmondson, of Brantford, the best sow in the same section. Very few of the specimens call for any special remark. The accommodation prepared for the swine seemed more ample than was needed, and a number of the pens were occupied by Merino sheep, others were vacant, and a few were taken possession of by the attendants. One of these lay stretched, in profound slumber, at the back of a pen, and created no small amusement among the spectators, who scarcely looked for a specimen of the *genus homo* in such a place. It will be necessary to make some alterations in the pens for any future exhibition, to prevent the escape of the animals. Many of the attendants barricaded the front of the pens appropriated to their charge by the unwieldy cases in which the hogs had been brought to the ground; a precaution which greatly obstructed the view, and was not a little inconvenience to the visitors.

Correspondence.

Sorghum Syrup—Bee Moth—Hawthorn.

To the Editor of THE CANADA FARMER:

SIR,—I see by the numerous applications for Sorghum seed this spring, that the people of Canada are beginning to take an interest in the growth of that plant; and as I have grown it for the last four years, I propose to give you a few words on the subject of its manufacture.

As soon as the seed gets black, or before if the frost comes, take a stick, about two feet long, and knock the leaves off; and with a reaping hook remove the heads, and then cut the stalks off close to the ground, lay them in the waggon-box, and draw them to the cane press, where the juice is pressed out. Take the juice and put it into a sugar-kettle, and boil it down to molasses, keeping it carefully skimmed all the time, as the quality of the molasses depends in a great measure upon the skimming. Then wash the pot carefully and fill it again, and proceed as before, being careful not to fill up the pot, as in making maple syrup. The press is a simple structure consisting of two wooden rollers about one foot in diameter, and sixteen inches long, standing upright, with cogs in one and mortices in the other, at the top of the crushing part. Three of the ends of the rollers are turned down to about six inches, and the other end is left larger and longer, to put the sweep on. The whole length of the longer roller will be about thirty-four inches, and the other twenty-four inches. These rollers run in four-inch planks, both top and bottom, which are held held together by a little frame at the end of the planks, they being about six feet long. The rollers are tightened together by means of a wedge outside the plank. Every farmer should have at least an acre of cane, as the molasses is better than golden syrup. The cane is crushed by a horse hitched to the sweep.

Permit me, also, to say a word to my bee-keeping friends of Canada. As the Bee Moth is a great annoyance to bee-keepers generally, it occurred to me three years ago that if the moths were so anxious to get inside the hive they would collect on combs outside; I therefore put two pieces of fresh comb in front of the hives one evening. I went to it the next morning and killed twenty-five moths; and a lot got away. The morning following I killed seventy-five moths, and have not been annoyed with them until this year, when I tried the same remedy with like results.

I see by your paper that the subject of live fences is occupying the attention of the farmers of Canada, and as there is a great variety of thorns growing wild here, two of these I think would make excellent hedges, for the following reasons:—1st. Their close compact nature. 2nd. Their rough bark, which resists the attacks of mice. 3rd. Their formidable thorns. One of these I shall call the Laurel Thorn, from the fact that its leaf is very like the Laurel leaf, smooth and glossy. I will enclose a leaf and a thorn of each of the two kinds I think the best, and if you think there will be a demand for plants, I will raise some for sale. I have the English Thorn bearing haws, but they are not to be compared with the Thorn before mentioned.

WM. HOSKINS.

Sarnia, Sept. 1868.

NOTE BY ED. C. F.—Several species of Hawthorn, (*Crataegus*) are indigenous and common in this country. Two of them, the scarlet-fruited Thorn (*C. Coccinea*) and the Black or Pear Thorn (*C. tomentosa*), have the leaves deeply toothed on the edges and more or less cut and jagged, besides other characteristics whereby they can be readily distinguished from the Cockspur Thorn (*C. Crus-galli*), the leaves of which are regular in form, having an ovate (egg-shaped) outline, slightly serrated at the margin, and shining on their upper surface. The spines or thorns are strong, slender and sharp, and sometimes are as much as two inches long. This is probably the best of our native species for hedges. The leaf and one thorn enclosed with the above letter belonged to this variety, the second thorn most probably to one of the other two.

CHINESE YAM.—J. Emery is recommended to communicate with Mr. Prince, of Flushing, New York, on this subject.

PEAT.—Mr. Angus Shaw brought to this office a specimen of peat found on his farm in Lakeside, Oxford County. He says there is apparently an abundance of it in that neighborhood.

ESTIMATED COST OF BUILDING.—A subscriber asks us to give the estimated cost of such a building as that for which we gave a design in the issue of Aug. 15. Such a house could be put up in wood for about $2,000. Built of brick it would cost about $3,000.

POISON IVY.—Mr. Charles Mungham enquires whether all the so-called Ivy found growing on stumps, fences, &c., is poisonous; "some of it" he observes, "has three, and others five fingers to each leaf." The most common native creeper, very much resembling in general appearance the poisonous plant in question, is the Virginian Creeper (*Ampelopsis quinquefolia*) which is quite harmless, and belongs to the same natural order as the grape vine. The Poison Ivy (*Rhus toxicodendron*) is a plant of the Sumach tribe, and is readily distinguished from the preceding by the leaves having only three leaflets, while the Virginian Creeper, as its specific name (*quinquefolia*) implies, has five.

The Canada Farmer.

TORONTO, CANADA, OCTOBER 1, 1868.

The Provincial Exhibition.

THE Provincial Association of Ontario may justly claim the hearty congratulations of the friends of agriculture on the successful issue of their twenty-third Annual Exhibition. Looking at the number of entries, the high standard of excellence attained in many of the departments, the good order that prevailed, the increased and improved accommodation, and the excellence of the arrangements and general management of the whole affair, we are constrained to pronounce the recent Exhibition one of the best—if not the very best—that has ever been held in the Province. Great praise is due to the authorities of Hamilton, the local committee, and the officers of the Association, for the energy, judgment and good feeling manifested on all hands; and in the subordinate ranks, the superintendents of the various departments, whose offices have proved no sinecure, are worthy of all commendation for the manner in which they have discharged their onerous duties. All the authorities concerned have shown a laudable consideration for the interests of exhibitors and the convenience of the public; and have even stretched the spirit of leniency and accommodation in some matters almost too far; for no one will deny that the general work of the Exhibition would be materially lightened, and the comfort of judges, reporters, and the public enhanced by a stricter enforcement of the regulations regarding the time of bringing articles to the ground. If all infringements of these rules, and reprehensible procrastination, were followed by a forfeiture of the privilege of competition, exhibitors would take care to send their articles in good time, and much of the hurry and crowding of work would be avoided. Indeed but for the judicious sub-division of labor, it would be quite impossible to get through the amount of work in the very limited time allowed. Fortunately for the success of the exhibition, the weather during the preliminary days of preparation and the two principal public days was fair and pleasant, so that the vast crowds that thronged the Crystal Palace and the show-ground had an opportunity of making their survey without the drawback of the drenching rain that has hitherto so frequently marred the enjoyment of these occasions.

The most serious disadvantage attending these shows is the inevitable crowding on the two public days. This is not only a great discomfort, but renders anything like a proper inspection quite impossible. How to avoid this yearly increasing inconvenience is a problem that will force itself on the attention of the Association, and must ultimately lead to some modification of present arrangements. This difficulty affects chiefly the departments within the main building and the erections for the display of Agricultural and Horticultural products. The facilities for inspecting implements and stock were very much better, and perhaps all that could be accomplished in the limited time.

The gratifying progress that the science of agriculture is making in the Province, as evident by these Exhibitions, must be manifest to all, and should stimulate us to press forward in the path of improvement. It is not too much to say that every department of the recent Exhibition showed some signs of this advancement; but it has been most marked, we think, in the quality of the stock, and in the number, variety and excellence of the implements displayed. The show of Short Horn cattle, and Leicester and Cotswold sheep, has never been equalled in Canada. The Horticultural department is also one of growing interest and magnitude. The position and prospects of the Fruit Growers' Association are greatly improved, and indicate a career of prosperity and usefulness.

The progress in Art and Manufactures is also very marked, and elicited the admiration of not a few strangers from the adjoining States, amongst whom were some high in official position, and every way qualified to form an impartial judgment. Long may these peaceful arts be the only rivalry between our neighbors and ourselves.

The Harvest.

THE Grand Trunk authorities have this year, as on former occasions, gathered through the agents at their different stations reports of the state of the crops and the general character of the yield and quality of the different farm productions throughout the country. The account is interesting, but, for the present at least, cannot, for want of space, be given in full. We however present a condensed view of all that is most important, from which we believe our readers will have a distinct idea of the estimate formed of the harvest in the districts through which the Grand Trunk passes. For convenience of reference the whole range of the Grand Trunk is divided into the following districts: I. THE BUFFALO AND GODERICH. II. THE WESTERN. III. THE CENTRAL. IV. THE EASTERN, and V. That of QUEBEC AND RIVIERE DU LOUP.

I. In the first district, viz., that of Buffalo and Goderich, the reports of the different crops are tolerably uniform throughout. The fall wheat, without exception, has been an excellent crop. The very lowest yield mentioned is fifteen bushels an acre, and that only in one report; while other cases are mentioned where the return has been as high as thirty-five. We should say that the average throughout the district would appear to be from twenty-two to twenty-five bushels per acre, and a very fine sample of grain. The early sown spring wheat seems, in certain localities, to have suffered considerably from drought

and midge, and, in some instances, is spoken of as a failure. Still, with few exceptions, it will yield from ten to fifteen bushels per acre, and the breadth sown is considerably larger than in average years. Barley is spoken of as a light crop, though in some instances the yield is as high as thirty bushels per acre. The same thing is to be said of oats and peas. Upon the whole these coarser grains are rather under the average, on account of the drought, but not to such extent as might have been expected. Hay is generally heavy; and root crops, on account of the dryness of the season, almost a failure in some cases, and light in all; but the late rains may still, in some measure, remedy this.

The reports for the western district, which extends from Sarnia to Toronto, are generally of the same character. There is not a single report which speaks of the fall wheat crop in any but the most favourable terms. The yields mentioned range from twenty to forty bushels per acre, and the sample is of the best description. The spring wheat is, as in the other district already referred to, not so good. Yet it is not, except in very rare exceptional cases, to be spoken of as a failure; and, but for the contrast between its yield and that of the fall wheat, would be almost regarded as a fair satisfactory crop. Root crops are generally spoken of as poor, but the hay is very abundant. Over such a wide extent of country there will of course be considerable diversity, but in general the coarser grains, barley, peas, &c., are rather, if anything, below an average, though in very few instances, indeed, spoken of as a failure. Flax seems, upon the whole, to be about the same as last year.

In the middle district, extending from Toronto to Montreal, the same story substantially is told. From Toronto to Bellcville there is not one report which mentions the fall wheat as below an average crop, except in the case of Newtonville, where, however, it is still said to have averaged about twenty-five bushels an acre—not so bad as things go. At Bellcville the winter wheat is said to be poor in quantity, but the quality good. From this port downwards but little fall wheat is raised, but what was grown seems to have turned out well. The spring wheat is generally represented, as in other districts, to have been injured by the excessive drought, still, over all, it will come very little short of an average yield of from fifteen to thirty bushels per acre. In some instances it is spoken of as above an average, and in others as the best crop harvested for many years. While barley is spoken of as a light crop in some instances, generally it is fully an average, and in some cases considerably above. The same thing may be said of oats. All represent the yield of hay as very large, and housed, of course, in the best condition.

In the eastern and Riviere du Loup districts the reports, upon the whole, are very satisfactory. The wheat is almost uniformly spoken of favorably, though the breadth sown has not been large. Oats and barley, with some isolated exceptions, are a fair average. Hay is spoken of in a good many cases as light, while there is not so generally an unfavorable estimate of the root crops as for the west.

Upon the whole, there is every reason for the people of Ontario and Quebec being satisfied with the harvest of 1868, and thankful for it. There will evidently be enough for home consumption, and a large margin for exportation. Of course the expectations of our unusual yield raised at the beginning of the season have not been realized, but the fears subsequently entertained and expressed by many, have also, in a great degree, turned out to be groundless. With the prices going, farmers will make out well, and even though a lower price should rule for the rest of the season, they will have no reason to complain. It is a good while since such a crop of fall wheat was gathered, and though other crops may not be correspondingly bountiful, yet, upon the whole, they seem to be tolerably fair, nay, what in other years might have been looked upon as deserving of being spoken of in even stronger and more favorable terms.

Quebec Agricultural and Industrial Exhibition.

BY Legislative enactment the Provincial Exhibition of Lower Canada should be held every other year, alternately in Quebec and Montreal. The last was held in 1865, in the latter city, and consequently Quebec should have had one last year; but failing to provide the requisite funds, lost the honour. Montreal, therefore, with commendable spirit and enterprise, held one this year in place of that which should have been held in 1867. The combined Agricultural and Industrial Exhibition was formally opened on Tuesday Sept. 15th, by the Lieutenant-Governor, Sir Narcisse F. Belleau, the previous day having been occupied in receiving articles and completing arrangements. The weather during the first two days of the week was magnificent, and everything betokened a successful exhibition. The total number of entries was over fifteen hundred, and in some of the departments the show eclipsed any former one in the Province. On Tuesday there was no great crowd of visitors, but on Wednesday, spite of a most unpropitious morning, there was a very full attendance of spectators, sufficient to show that considerable public interest was felt on the occasion, though there was not the overwhelming crowding which usually distinguishes the principal public days of Western Provincial Exhibitions, rendering the task of inspection one of no small difficulty. In the early part of the day ample space was left for a leisurely examination, though a drenching rain and consequent muddy ground made it uncomfortable enough; but the sky cleared as the day advanced, and the weather, probably, did not much affect the throng of visitors. In the absence of proper show grounds and buildings, the exhibition was held in different parts of the city. The live stock and farm implements occupied a field known as the Priest's Farm, in the north-western part of the city. This field is surrounded by open sheds, and others have been erected in the middle, an open space being left for a horse ring and for implements. The agricultural productions were shown along with the industrial department in the Exhibition Building, St. Catharine Street; while the Horticultural Society held a separate show of fruit and flowers in the Drill Shed.

One noteworthy feature about this Quebec exhibition which strikes a stranger from the Western Province, and would doubtless be still more surprising to an American visitor, was the comparative absence of side shows. A few refreshment stalls were to be seen along the route to the fair ground; but beside these there were not many temporary erections to be seen outside; indeed, one vociferous and eloquent showman nearly opposite the principal entrance seemed to be without any rivalry in his line, and doubtless realized a rich harvest from the credulous public by the exhibition of "Dr. Livingstone's Chimpanzee" and the "living Kodloo-kamba, from the wilds of South Africa." This last animal, to judge from the pictorial representation on the outside, was a slight improvement on the Chimpanzee, and suggested the idea of Barnum's gorilla. Both the city and the exhibition proper gain by the paucity of these itinerant caterers of the marvellous.

In the live stock department there was altogether an excellent show; and though the accommodation was of a temporary nature and adapted for fine weather only, yet the general arrangements were good. Following the order of the prize list, the animals were grouped according to their classes and sections, so that a fair opportunity was given both for judges and spectators to make their comparisons between animals of the same breed and age. Up to the time of our leaving the ground, however, the visitor had to submit to one serious disadvantage, which is especially felt in attempting to give any account of the exhibition, namely, that no names were attached to any of the articles; nor, with few exceptions, had any of the prize cards been put in their places. This last deficiency was in due time remedied; but the names of the exhibitors of animals that did not gain prizes were only in a few cases made known to the public, so that a stranger could not well specify either animals or exhibitors. This must be taken into account, and all allowance made for omissions in this cursory notice to give honour where honour is due.

With this explanation, we will speak first of the horses, of which there was a good display. A most unfortunate accident diminished the number of those on the ground on the third day. For want of proper stable accommodation, most of these animals were removed for the night, and a fire having broken out in one of the stables in the neighbourhood where some of them were accommodated, three very fine horses perished. One of these was the imported Clydesdale horse "Briton," belonging to the Beauharnois Agricultural Society. Another valuable Clydesdale, two years old, imported this year by the Huntingdon Society, and an Anglo-Norman horse belonging to the same society, were also victims of this sad catastrophe. The origin of the fire was not made known. Some of the animals in the same stable were fortunately saved.

One peculiar feature in this class was the Percheron horses, of which there were some magnificent specimens. These recently introduced heavy draught horses seem to be gaining favour in the Eastern Province, and also in the United States. They have valuable points about them which will probably lead to their introduction into Ontario.

Of the Clydesdales there were some fine specimens; among them a splendid animal called "Lord Clyde," bred by Mr. Miller, of Markham; also one imported by Mr. Robt. Brodie, of North Georgetown, County of Chateauguay, who purchased him last year from Messrs. Muir, of Huntingdon Mains, Scotland. The weight of this animal is 1,833 lbs; his height, seventeen hands and an inch. He is a well developed, finely proportioned, and powerful animal. There are other very good horses of the same breed; but the chief of all the draught horses, and indeed the best in the class, was undoubtedly Mr. Cochrane's Suffolk "Bounce," which not only gained the first prize in this section, but also the Prince of Wales' prize for the best imported stallion. This noble animal has already been described and his portrait given in the CANADA FARMER. He is now in excellent condition. Mr. Cochrane also showed a pair of Suffolk mares, in the heavy draught section—one of them imported last year and the other recently.

Among the thorough-bred horses were two beautiful animals; one owned by Mr. Carlos Pierce, of Standstead, and called "Canwell," was imported in 1863, by the Quebec Agricultural Society; the other is the property of Mr. Hugh Brodie, and is named "Wagram." He was bred in Kentucky. There was an excellent display of native Canadian horses. Altogether the show in this class was well filled, and if space permitted, many others of great merit might be specified.

The show of cattle was chiefly remarkable for the shorthorns exhibited by Mr. Cochrane, which would have graced any exhibition in the world. Most of these have made their appearance in Canadian show yards before, but some are recent importations. Mr. Cochrane did not, however, show the chief of his recent acquisitions, the Durham heifer, "Duchess 97," for which the very high price of one thousand guineas was given to her late owner, Captain Gunter, of Westerley, in Yorkshire. She was sold on the express condition that she was not to return to England. She is to be bred, we understand, to "Eleventh Duke of Thorndale," and if her enterprising owner is fortunate, will doubtless add some noble animals to the Canadian Herd Book. Mr. Cochrane also bought from Captain Gunter, for one hundred guineas, a roan heifer, "Wharfdale Rose," by "Third Duke of Wharfdale," from "Oxford Rose," by "Sixth Duke of Oxford." This heifer gained the first prize in the year old class. It is almost needless to say that Mr. Cochrane carried off all the honours in the Durham class, "Rosedale" being the most admired of the beautiful herd of these choice cattle which he exhibited. He showed also some fine Herefords, "Compton Lad" among them. A number of these choice animals were exhibited at Hamilton, and are referred to in our account of our own Provincial Exhibition, any further notice of them here is superfluous. Near these were some beautiful little creatures, a herd of Jersey cattle imported by Mr. Sheldon Stevens. They were procured mostly from the Queen's Farm at Windsor, and the rest from Mr. Fowler, of Jersey. They were genuine Alderney breed, and were now for the first time, we believe, shown in Canada. They are diminutive, gentle animals, with a deer-like expression, and well adapted for private dairies, the extreme richness of their milk making them especially valuable for the purpose. They will have to be carefully housed during our severe winters. Mr. Sheldon's herd consists of twelve head altogether, eight of which were exhibited. Close to these, and as if purposly to show to advantage the contrast in size, was a mammoth ox, "General Grant," exhibited by Mr. Carlos Pierce, of Stanstead;

his weight is said to be over 4,500 lbs., and he stands over six feet high. He looks a very Goliath among beeves. There was a pretty good show of Ayrshires, Mr. Irving, of Logan's Farm, exhibiting some good cows, and the Beauharnois Society a fine bull. Of Halloways, besides two or three bulls, there was a small herd purchased by their present owner, Mr. Ashworth, of Ottawa, from Colonel Denison. The grade cattle were numerous, and some of considerable merit.

The show of sheep was also good, and in this class Mr. Cochrane was the principal exhibitor. He showed Cotswold, Oxford Downs, and Leicesters. In the latter breed there was some good competition. Mr. D. Elliott showed a flock of Cheviots.

The collection of swine was not very large, but there were some good specimens, among them some Prince Albert pigs imported by Mr. Sheldon Stevens from the Windsor Farm. Mr. Irving also showed some good large breed hogs.

In the poultry class, Mr. Sheldon Stevens and Mr. Cochrane were the most meritorious exhibitors; but the display was very limited, and shown to great disadvantage, on account of insufficient space and utter disregard of methodical arrangement; rabbits, turkeys, bantams, geese, pigeons and Brahmas being promiscuously grouped together in the strangest confusion.

The display of implements was good but not extensive. Mr. Glenn showed a combined reaper and mower from the Joseph Hall works, Oshawa; Mr. Evans, of Montreal, an American machine; Mr. Moody, of Terrebonne, an Eagle mower; and Messrs. Frost & Wood, of Smith's Falls, a buckeye machine; Mr. Johnson, of Montreal, also showed a combined reaper and mower. There were a number of threshing machines on the ground, all to western eyes of small size, and mowed by the incline tread power with two horses. These were tested for the satisfaction of the judges on the ground, and attracted a large crowd of spectators. Ploughs, chiefly of iron, were numerous, as were also most of the ordinary farm implements. A very useful contrivance was shown by Mr. Ferguson, called a stone lifter, which seemed well adapted for the work of lifting and removing large stones, and could be applied to the purpose of raising stumps out of the ground. In the midst of this display of implements was an ingeniously contrived camp tent, which would rejoice the heart of an amateur hunter or surveyor in the back woods. It is made of good stout canvas, and most luxuriously fitted up inside with table, bed, camp stools, small cook stove, besides an ample supply of tinware, spoons, knives and forks, and all the requisites for camp life. The tent and its miscellaneous furniture can be compactly folded together, and stowed for importation in four strong bags, the whole not weighing over eighty pounds. The maker is James A. Hunt, of Quebec.

On the same open space with the implements were some specimens of fences and gates, Mr. Lewis, of Melbourne, exhibiting his newly patented contrivance that dispenses with hinges and substitutes rollers on which the gate slides. Mr. Lewis had these gates in several varieties.

On this portion of the ground was a stand of beehives, most of them made, in part at least, of straw, and also a stock of Italian bees, but the names were not attached, and there was no one near to give any explanation.

The agricultural productions were collected together in a very small compartment of the Crystal Palace or Exhibition Building. Along with some very inferior specimens, good samples were exhibited of grain and of roots, especially of potatoes, which would seem to do well in the neighbourhood of Montreal in spite of the drought. Really excellent specimens of Indian corn were also to be seen; but the show in this respect was very limited, and altogether eclipsed by the miscellaneous display of the Industrial Department, which occupied the main portion of the floor and galleries in the spacious building. Indeed, this unpretending but most important part of the Exhibition seemed so much thrust aside that a visitor might pass through the building without discovering it. There was a fair show of dairy products.

The Agricultural Department of the Exhibition was altogether creditable, and an improvement, we believe, on any former show of the Province. The total number of entries was as follows:—Horses, 225; cattle, 430; sheep, 400; swine, 127; poultry, 130; grain and seed, 177; roots and vegetables, 205; dairy products, 160; implements, 200.

At a meeting of the Agricultural Association, Mr. Cochrane was elected President, and a gold medal was awarded to him for his eminent services in importing valuable stock into the country. The society granted the sum of $100 to the Agricultural Associations of Huntingdon and Beauharnois for each of the horses lately destroyed by fire. It was also resolved to ask the corporation to contribute to the erection of permanent buildings for the accommodation of stock, &c.

The Industrial Department was held in the Exhibition Building, in St. Catharine Street, and was crowded with articles of Canadian manufacture in bewildering variety. Visitors, as usual, thronged all the passage-ways, rendering the task of progression or examination difficult and tedious.

The press of other matter more immediately within the scope of this journal precludes the possibility of any detailed description of this department.

The Montreal Horticultural Society held their show, unconnected with the Provincial Association, in the Drill Shed, a spacious, lofty, and well lighted building, admirably adapted for the purpose. The style of decoration was in good taste, and the whole effect was charming. The display of fruit was not large, but the grapes grown under glass were remarkably fine. There was also an excellent collection of apples, and some good pears and well ripened melons of luscious flavour. Of other fruit there was but a meagre show. Two long tables of flowers gave good evidence of the skill and taste of the amateur and professional horticulturists in Montreal. There was an extensive collection of stove plants, which formed a conspicuous feature in the exhibition. There was a large attendance of visitors, and during a portion of each day the strains of a good military band enlivened the scene.

The combined attractions of these exhibitions, the Dominion Rifle Match, the Anglican Synod, the visit of the Governor General and other matters of special interest, filled the city to overflowing, and it was with the greatest difficulty that the influx of strangers could find accommodation.

Montreal Verterinary School.

We direct attention to the advertisement of the Montreal Veterinary College and Institution, that is we believe steadily progressing, and doing important service to the cause of agriculture in Quebec. We may mention, in connection with this subject, that the school has lately secured a valuable acquisition in a set of life-size and magnified models, which are intended also as a nucleus of an Industrial Museum. We are informed that some time ago, Dr. Leclerc, the Secretary of the Board of Agriculture, having visited the Agricultural museums of Washington and Albany, made a report of some artificial, anatomical and vegetable models he had seen in those collections. The report was made in March last, and in consequence the Board voted $1,000 towards the formation of a similar collection. Dr. Auzoux, of Paris, was accordingly written to, and some very interesting preparations have lately arrived, which were exhibited at the recent Provincial Show in Montreal. The most remarkable of these is a horse, nearly life size, which takes into about a thousand pieces, the exterior showing on one side the skin removed, with the nerves beneath, and on the other side the muscles, each portion being coloured to exactly resemble life. The head can be removed, and divides into numerous pieces, showing all the internal portions. Parts of the back and side being removed, all the organs are displayed, being exactly modelled after life. This is intended for the use of the Montreal Veterinary School, under the able direction of Mr. McEachran, and will certainly be of the greatest benefit to the pupils, during lectures, in that excellent institution. Among the other models are jaws of thirty pieces, showing how age is discovered by the teeth. There is also a set of small models, or *tableaux*, illustrative of the structure and development of the teeth. Also, the jaws of an ox in thirteen pieces. Not the least ingenious are the pathological preparations, in thirteen pieces, showing diseases of the extremities. By the substitution of one piece for another, the same limb, in a healthy and diseased state, may be shown; bones of the hind leg twelve pieces; hind extremity dissected, showing bog spavin, wind-galls, bursal enlargement. A model of the hoof, taken into three pieces. The lower anterior extremity, showing tendons, blood vessels, nerves and ligaments. Among the vegetable preparations, is an enlarged model of a sweet pea, taking into twelve pieces, showing their minute structure and component parts; also a grain of wheat, three hundred times its natural size, dividing it into longitudinal and transverse sections, showing formation and disposition of cells, and also illustrating growth and development of germ. There is also a large egg, one hundred and forty-eight times the natural size, showing shell, lining membrane, disposition of the yolk, white, and embryotic development of chick. The Board of Agriculture also contemplate getting a large collection of model seeds and grains, belonging to various quarters of the globe, from the celebrated French firm of Vilmourin and Andrin of Paris, the whole with a view to the formation of an Agricultural Museum.

Stock Sales.

Cotswold and Southdown Sheep.—Among the advertisements in our present issue are notices of several important stock sales. Mr. Stone, of Moreton Lodge, Guelph, announces a sale of Cotswold and Southdown sheep to take place on Thursday, Oct. 15th. He offers a number of rams and ewes of both breeds, on advantageous terms, time being allowed for payment. The high reputation of Mr. Stone's flocks renders anything beyond the announcement of the sale unnecessary. Those who are commencing to raise sheep, or who wish to improve their stock, should avail themselves of this rare opportunity. A number of Berkshire hogs are included in the sale.

Short Horn Cattle.—A sale of Short Horn cattle is advertised to come off on the farm of Mr. Douglas, Onondaga, on the same day.

Short Horn Bulls.—Mr. H. G. White, of South Framminghsm, Middlesex county, Mass., U. S., advertises for sale the Short Horn Bull Ninth Duke of Thorndale (of Duchess blood). His dam is from the same cow that dropped the Eleventh Duke of Thorndale, now the property of Mr. Cochrane. The Glenvale Society also offer a Durham Bull for sale.

Prize List.—We defer, as heretofore, the publication of the Prize List till it has been officially corrected and completed.

Inter-Provincial Fruit Growers' Prize.—We insert in the present issue an advertisement, which we regret we did not receive sooner. Though dated from Wolfville, on the 30th August, it did not reach this office till after the publication of our last issue, and we fear the announcement is altogether too late to be of any use to the fruit growers of Ontario. All that can now be done is to insert the advertisement, and call attention to the liberal intentions of the Nova Scotia Fruit Growers' Association, who offer a prize consisting of a gold medal and one hundred dollars in money, for the best collection of apples, six of each sort, grown in any Province of the Dominion, to be competed for at the Agricultural and Industrial Exhibition which will open in Halifax on the fifth day of October. If the Horticulturists of Nova Scotia can beat the display of apples at the recent Exhibition in Hamilton, they may reckon themselves the champions of the world, and we should like to see the Show.

Agricultural Intelligence.

Address of the President of the Provincial Association.

At three o'clock on Thursday afternoon of the exhibition week, the President of the Association, Mr. Thomas Stock, of Waterdown, delivered the annual address from the grand stand in the Exhibition Grounds.

Hon Asa A. Burnham, of Cobourg, Vice-President of the Board of Agriculture, introduced the President to the meeting; and he then delivered his address. He was not, he said, going to make a set speech on the occasion; he made no pretensions to oratory. But he felt that he might, perhaps, in the course of a few remarks, be able to throw out some ideas of value; and if he succeeded in doing so, he would be well repaid for any trouble he had taken in the matter. He desired to bring before them a few circumstances coming under his own observation, and indicate what in his opinion would be improvements. This Agricultural Association had been in existence now for twenty-two years, and they all know that immense progress had been made in that time. He had the privilege of attending the first Exhibition in Toronto. It was one got up by a few of the pioneers of the West, some of whom were standing before him. To these men the public were now indebted for all the good which the institution they had founded had been the means of effecting. It was commenced under many disadvantages. The implements then used in agriculture were of the rudest nature, and agriculture was altogether in a most imperfect state. The time to be spared from the labour of farm clearing was too little to leave hope of much progress at that period. But what had been accomplished since then was patent to all. Year by year these exhibitions had gone on increasing in magnitude and usefulness, until they had reached their present magnificent dimensions. He sincerely hoped that in respect to them a retrograde movement would never be witnessed, but that they would ever be found to flourish. He need scarcely remind them of the immense increase which had taken place in the value of stock within the period he had alluded to. But, as a practical farmer, he would urge them not to rest contented with the stand-point they had attained, but persevere in the road of progress. The present Exhibition undoubtedly was a great success—perhaps the most successful one ever held in the Province. But he would caution them against entertaining the notion that the limit of progress had been reached, and that they had done all that was necessary. Such a notion must infallibly tend to their harm, and he would again caution them against it. It was said to be more difficult to make progress in a state of prosperity than in adversity, and his own experience led him to believe this. What should be the aim of every visitor to the fair was to increase his knowledge. Let them take with them to their homes the information so fully acquired here—let them exercise their judgment in regard to what was to be seen, and wherever they got a useful hint carry it away with them. Let this exhibition not be made by visitors a mere holiday matter—a time of pleasure and excitement. It should, on the contrary, be one of the hardest working weeks in the year to all desirous of increasing their stock of knowledge and advancing in prosperity. This seemed to him to be the great object of this exhibition, and as one of themselves he solicited them to make good use of the information which can be so fully acquired at these exhibitions. Reverting to the early days of the exhibition, he remembered that the first year all that was offered in prizes was £400. This year the Association had a prize list of $13,000. That was pretty fair progress, and furnished an answer to those who sometimes said the progress was not fast enough. It seemed to him that, looking at the advance in the time mentioned, in arts, agriculture, mechanics and manufactures, the progress had been as fast as could be safely made, and was certainly more than could have been anticipated. Mechanics, for instance, might well be proud of their contributions to the Fair; for they were such as have not been surpassed by any exhibition. Gentlemen from the States, England, Scotland, and elsewhere, who had attended the exhibition, had expressed themselves astounded at the perfection and excellence of the manufactures shown. What a contrast these fine farming implements shown presented to those in use in the time when they were confined to some old Ancaster ploughs and a few imported from Rochester—when farmers were obliged to use an article with no lever-age in the world, and when farming was altogether a tremendous task. At any of the exhibitions now were to be seen splendid iron ploughs, harvesters, and an immense variety of agricultural implements. There had in fact been a complete revolution in agriculture since those olden days. The system of sowing wheat from year to year, until even the best soils became exhausted, had given place to that of a rotation of crops, and there was no fear of a return to the old style again in that particular. And in this connection he would remark that much of the stuff raised by farmers under the new system was not such as could be exported; and since that was the case, he would say by all means encourage manufacturers to come to the Province, stay there, and be consumers. He did not believe in the rule laid down by some to buy in the cheapest and sell in the dearest market. There were circumstances when this would not be politic, and he thought that as mechanics purchased their surplus and non-exportable stuff from farmers, and thereby gave the latter a market they needed, so, in turn, mechanics should be encouraged and protected against foreigners. In the infancy of their manufacturing interests, such guardianship and encouragement was, no doubt, necessary, and then, of course, when they attained maturity they could get along on free trade principles. Protection was needed, he took it, until their manufactures reached more strength, and was decidedly the best policy for Canada at present. These were his views on the subject.

A continuous run of prosperity had increased their

institution to one of mammoth extent, so that it was not possible for all to have that opportunity of examining the articles which was desirable. The crowd was too great, and the time too short to admit of this being done. But the institution was now coming into existence under the new Act, which entirely altered their duties. He did not know what plan to suggest to remedy the evil alluded to, but was of opinion that it might be met either by an extension of the fair time, or by some other plan. Under the new Act the country was divided into twelve electoral divisions, and instead of voting at the annual meeting on some names submitted, each County Association elects at its annual meeting a representative to the Board of Agriculture. Before this, the Board and President managed all the business of the Association except during the week of the show. Then it was the President's business to take charge of the arrangements. Now the arrangements were improved, and the people had more control of the Association and its affairs. Having alluded to the vast improvement shown in all the departments of late years, he urged those present to forward the interests of the Association in every way, and not be ready to take offence at every little thing that occurred not to their liking. If they had fault to find, the way to do was not to grumble and stop at home, but come up and endeavor through their representatives to secure the desired remedy. There were too many grumblers and too few workers in that as in other institutions. But, notwithstanding all that, the Exhibition had been a great success—even beyond what could have been anticipated. Having noticed his lengthy connection with the institution, thanked them for the trust they had reposed in him, and the honor done him, by electing him President, he went on to say that he was going to retire from office, but still would always esteem it a pleasure to do what he could to advance the interests of the Association. He then alluded to the cattle disease, and to the trip of a committee of the Association to enquire into it. As one of that committee, he would say that it was admitted on all hands that the original cause of the disease is not known, nor is it known how it is communicated. He would merely say, as it was possible that some of their neighbors from the other side of the line might be present, he desired to return them hearty thanks for their kindness and hospitality to the committee, and the help afforded them in their mission. In conclusion, he would ask those present to join with him in returning thanks to an All-wise Providence for their late abundant harvest—a harvest, one of the greatest proofs of the richness of which was shown in the success of their Exhibition. He desired, finally, to return thanks to his colleagues for their co-operation, and to the local committees.

Annual Meeting of the Provincial Agricultural Association.

The annual meeting of the Provincial Agricultural Association was held in the Court-house, Hamilton, on Thursday evening, Sept. 25th. The President, Mr. J. Stock, occupied the chair. There were present a large number of delegates from the different agricultural associations. The President explained that, under the new law, the society could do no more than appoint auditors and choose the next place of meeting. Col. Johnson, London, and T. D. Harris, Toronto, were appointed auditors. On motion of Mr. Ashford, seconded by the Hon. Mr. Skead, it was resolved that the next exhibition be held at London. The Mayor of London and Ald. Partridge and Durand offered the usual guarantees of accommodation for the exhibition. Hon. Mr. Skead notified delegates that the city of Ottawa would move to have the exhibition held there the year after next. The old by-laws were re-enacted and a committee appointed to revise them. Thanks were passed to the city of Hamilton for its accommodation for exhibition purposes.

Some discussion then ensued with reference to the cattle disease. Col. Denison explained that the Hon. Mr. Allan was delegated officially from New York, and came to Canada to show that they on the other side were anxious to act with us in the matter. He had met the board in an informal manner, but had been obliged to leave Hamilton before this regular meeting of the association. It was finally resolved in reference to this matter That the Board of Agriculture be empowered to take such steps as are necessary to meet the delegates at Rochester with reference to the cattle disease, and the propriety of holding an international convention.

In answer to an enquiry, the Secretary stated that the report of the committee on the cattle disease was being printed, and would be distributed shortly.

A vote of thanks was passed to the railway and steamboat companies, the judges and the President, when the meeting adjourned.

Meeting of the Board of Agriculture.

The members of the Board of Agriculture met at Hamilton on Wednesday, Sept. 24, for the purpose chiefly of considering what steps it was desirable to take in reference to the cattle disease, and whether any relaxation could now be safely made in the order prohibiting the importation of Western cattle.

It was resolved—"That the Board having ascertained that the cattle disease has almost if not entirely abated in the Western States, and that no danger need be apprehended from the transportation of American cattle through Canada, would recommend that the Government do remove the prohibitory order on and after the 1st of October, and would, as a matter of precaution, suggest that competent persons be appointed at Detroit and Port Huron for thirty days, to inspect all cattle before being shipped through Canada, and to see that the railway companies use proper disinfectants; and that the Secretary do forthwith send a copy of this resolution to the Minister of Customs."

It was also resolved to ask permission from the Government to allow Mr. Cochrane to exhibit at Rochester.

Entries in the Agricultural Department of the Exhibition.

We give below a summary of the number of entries in the Agricultural Department of the Exhibition, and in corresponding columns those of 1866 and 1867:

	Toronto, 1866.	Kingston, 1867.	Hamilton, 1868.
HORSES.			
Blood	22	4	16
Agricultural	131	96	134
Road and Carriage	161	181	196
Heavy Draught	62	54	65
Total	376	335	411
CATTLE.			
Prince of Wales Prize-Herd	.....	.....	14
Durham	92	86	127
Devons	106	59	72
Herefords	32	34	86
Ayrshires	61	122	81
Galloways	50	62	68
Angus	12	.....	3
Grade	66	64	46
Fat or Working Cattle	28	31	82
Total	486	448	527
SHEEP.			
Leicester	.....	210	336
Cotswold	.....	117	135
South Downs	.....	67	103
Shropshire Downs	.....	47	33
Fine Wooled	.....	39	98
Fat Sheep	.....	10	22
Total	812	490	727
PIGS.			
Yorkshire	.....	30	37
Large Berkshire	.....	31	17
Other large breeds	.....	10	20
Suffolk	.....	39	29
Improved Berkshire	.....	49	48
Essex and other small breeds	.....	31	32
Total	185	108	199
POULTRY.			
Total	378	214	343
AGRICULTURAL PRODUCTS.			
Grain, &c	462	485	462
Roots, &c	438	204	439
Total	900	689	901
HORTICULTURAL AND DAIRY PRODUCTS.			
Fruit, &c	489	287	573
Garden Vegetables	552	208	453
Plants and Flowers	192	168	122
Dairy Products, &c	145	135	177
Total	1378	778	1325
AGRICULTURAL IMPLEMENTS			
Horse or other power	128	118	206
Do for hand use	122	117	153
Total	250	235	359
Cattle Food, &c	11	5	0
Total Entries, 1866			4,034
" " 1867			3,360
" " 1868			4,891

The Horticultural Products at the Exhibition.

THE Horticultural Products were shown in a long wooden building erected on the west side of the Crystal Palace. This arrangement tended greatly to relieve the throng in the main building. A wide table extended down the centre, on which were displayed the fruits and flowers, and on each side of the building the vegetables, grain and dairy products were shown. Notwithstanding the very dry and unfavourable season, the collection of fruits shown was superior to those exhibited at any former exhibition, and in open air grapes especially a very marked improvement was discernible. From the crush of people always in the vicinity of the place where they are to be seen, there is no doubt a very great interest taken in them by the public generally. Among the newer varieties were shown, Iona, Israeli, Allen's Hybrid, Adirondac, Rogers' Hybrids of various numbers, and a variety of seedlings.

The division of the prize list into professional and amateur departments three years ago, has proved satisfactory, and now affords a better opportunity of showing the progress among both sections of exhibitors. It also affords either the opportunity of more correctly judging of the advancement of the other, thus making the race more decided and the parties more conspicuous than if both were mixed in one class for competition. The entries by professionals were much larger than ever before, and the same remark applies equally to amateurs. A gentleman from Ohio remarked in regard to the show, that the sight of the tables repaid him for all his trouble. Both are progressing equally fast, and indicate that Canada is destined to be a very great fruit producing country. Among the professionals, a fine display from Messrs. Geo. Leslie & Son, of the Toronto Nurseries, occupied the head of the table, where it attained just prominence from its variety and perfection. It contained 110 varieties of apples, fifty-five of pears, thirteen of plums, thirteen of hot-house grapes, and fifteen of open air grapes, besides crab-apples, cherries, currants, strawberries, and a varied collection of other fruits. A collection of the same size has never before been brought together, and has well earned the prize which Mr. Geo. Leslie, the senior in the firm, has gained for the last fifteen years. It was awarded a diploma in addition to the prize. Messrs. John A. Bruce & Co., Hamilton, also competed in this department, but fell far short of Messrs. Leslie in number, though some of the specimens were very creditable. They gained a second prize. As a whole, apples were somewhat smaller in size than those shown in 1866, which was a favourable year for their production, but fully up to those shown at Kingston last year.

Messrs. Leslie & Son made a large number of entries in apples, as did also Messrs. Bruce & Co., of Hamilton, and Wolverton & Smith of Grimsby.

Pears were shown in considerable numbers and great excellence; a collection of fifty varieties, by Messrs. Leslie & Son, taking first prize, and a collection by Messrs. Bruce & Co. coming in for a second. A very fine collection of open air grapes shown by Mr. Beadle, of St. Catharines, were awarded a first premium—Mr. Read, (of Port Dalhousie) taking second rank. Among those shown by the latter gentleman was noticeable a very large bunch of black Hamburgus, raised in the open air, which took the prize as the best and heaviest one bunch black Hamburgh grapes, although they were brought into competition with grapes grown under glass. Mr. Beadle also took first prizes for the best three bunches of black and of coloured grapes.

In hot house grapes very meritorious collections were exhibited by Mr. John Gray, of Toronto, Messrs. Bruce & Co., of Hamilton, and Leslie & Son, who all gained prizes in various sections of this fruit.

In the amateur department the most noticeable feature was the display of out-door grapes, which occupied a large portion of the tables set apart for the various fruits. Mr. Kilborn, of Clinton, took the largest number of first prizes.

Mr. Taylor, of St. Catharines, was also very successful. In his collection were to be found a large number of the newest varieties.

The kinds which were exhibited in the greatest perfection were Iona, Allen's Hybrid, Delaware and Adirondac. Pears were not shown in as large quantities as in some former years, but were of fine quality. Apples occupied the largest place on the tables, and were a show in themselves. H. J. Brown, of Niagara, had a fine twenty varieties, which took a first prize. The other entries of this standard fruit were too numerous to particularize.

Plums were shown in small quantities, and were only of medium merit. This is no doubt attributable to the lateness of the season.

Peaches were in considerable number, and mostly from the Niagara district, which is a favoured locality for the growing of this fruit. In this section Mr. H. J. Brown carried off the largest number of first prizes.

Melons were shown in considerable quantity, and some of the specimens were of enormous size and good quality.

In domestic wines made from the grape, an extraordinary progress was discernable, there being in the several sections of dry, sparkling and sweet wines, no less than 50 entries. For dry wine, Mr. James Brown had the first prize, a distinction which, considering he is only an amateur, and competed with his new-made wines against skilled professionals who showed old wines, does him great credit. The second prize for dry wine was awarded to Mr. Bauer, of Hamilton, who also obtained the first premium for sweet wine. This gentleman's sweet wine received the highest encomiums from the Judges, none of the other samples approaching it in quality. He manufactures largely for sale. For sparkling wine Mr. James Taylor, of St. Catharines, took first prize, and Mr. H. Bauer second. The judges recommend that in future the prizes for wine should be divided into two classes, namely, professional (or those who manufacture for sale) and amateur (or those who make only in a small way.)

The show of Garden Vegetables was on the whole no way behind any previous one. Here, as heretofore, the exhibition was largely indebted to W. Burgess, W. Benham, of Guelph; Walls, of Kingston; Guthrey, of Toronto; A. W. Taylor, of Hamilton; Baker, and Allen, of Guelph; and other well known exhibitors. There were monstrous heads of cabbage that had defied the drought, tomatoes in abundance, and in short every variety of garden produce in this class.

The display of *Plants in flower* was rather meagre, though being arranged in the middle of the centre table they added greatly to the appearance of the place. The paucity of their numbers may be accounted for by the great difficulty experienced in sending them to the exhibition from a distance (all those shown were from the neighborhood of Hamilton) and by the unwillingness of owners to risk removal of valuable plants from the congenial atmosphere of a greenhouse to the chilly and unsuitable air which must needs pertain to any exhibition building at this time of year.

For the best collection of green-house plants in flower, not less than twelve specimens, Mr. J. Brown, of Hamilton, has first prize, and E. Townsend, do., second prize.

For the best display of plants in flower, distinct from other entries, the above named gentlemen retain the same rank—Mr. R. Rowe, of Hamilton, coming in for a third prize.

The show of cut-flowers was not nearly so large as at former exhibitions, though the past dry season may have had a great deal to do with it. Some very creditable entries were, however, made, amongst the most noticeable of which may be mentioned a collection of Dahlias—twelve standard Dahlias and twelve Bouquet Dahlias by Geo. Leslie and Son, Toronto nurseries, each entry of which gained a first prize; a collection of Gladioli by J. A. Bruce & Co., of Hamilton, which were very much admired, and received a first prize; a collection of Asters by M. Flanagan, Kingston; a collection of perennial flowers by Messrs. Leslie & Son, some of the varieties in which were imported from Great Britain last spring, and which were of fine form and color; a collection of Hybrid Perpetual Roses by the same; and a collection of Verbenas by J. W. Sinclair, Hamilton, all of which gained the distinction of a first prize.

Fruit Growers' Association of Ontario.

The first annual meeting of the above Association, as organized under the new Agricultural Act, was held on Tuesday evening, the 22nd Sept., at the Court House, Hamilton. Contrary to what might have been expected, the attendance was but small, not more than sixty or seventy persons being present. The President, W. H. Mills, Esq., being absent through illness, the chair was taken by J. C. Rykert, M. P., Vice-President.

The minutes of the last meeting having been read, D. W. Beadle, Esq., Secretary and Treasurer, stated on behalf of the directors that there had not been time to put the report into presentable shape, as it would consist of returns from the fruit committees, and from a number of gentlemen resident in the various parts of the Province, and who are employed in fruit-growing. A report would, in due time, be prepared, and submitted to the Minister of Agriculture, when it would be given to the public. Four essays had been sent in on "the cultivation of the apple," and the committee appointed to adjudicate the prizes had awarded the first to the one bearing the motto, "The price of good fruit is eternal vigilance," Mr. W. Beadle, author, and the second to one from the pen of Mr. J. T. Duncan, of Bayfield. At the request of the meeting, Mr. Beadle then read his essay, which was greeted at the close with appreciative cheering. The Secretary-Treasurer then reported the state of the finances as follows:—

Balance on hand at last report		$ 21 28
Members' fees		157 00
Government grant		350 00
		$528 28
Paid stationery and printing	$43 78	
Travelling expenses of Fruit Committees	29 25	73 03
		$455 25

The annual address of the President was then read by Rev. R. Burnet. It gave an interesting *resumé* of the history of the Association since its organization in 1859, described its present legal basis and sphere of action, as defined by the New Agricultural Bill, referred to the amount of the Government grant, and urged the desirableness of its being increased, from the numerous ways in which it might be usefully expended, among which the importance of Entomological investigation to abate insect ravages upon fruit was named, and closed by pointing out various directions in which the Association might render itself of signal service in promoting the fruit-growing interest.

The election of officers was then proceeded with. Mr. W. H. Mills was re-appointed President, and Mr. J. C. Rykert was re-appointed Vice-President. Mr. D. W. Beadle was again elected Secretary and Treasurer. The following gentlemen were chosen Directors:—

His Honor Judge Logie, Hamilton, G. Leslie, Toronto, John B. Martin, Cayuga, C. Arnold, Paris, Rev. R. Burnet, Hamilton, A. M. Smith, Grimsby, J. Springer, Barton, George Muston, Guelph, W. Saunders, London.

Miscellaneous business was then in order, and a number of practical matters were discussed, the chief among them being the best methods of destroying certain insect depredators, and the necessity of more stringent measures being adopted to prevent robbery of orchards and gardens and spoilation of shade trees. On the latter subject it was resolved that the President and Secretary petition the Dominion Legislature, in the name of the Association, for the insertion of clauses in the forthcoming Consolidation Act, conferring summary powers on magistrates for the punishment of such offenders. A vote of thanks to T. Swinyard, Esq., General Manager G.W.R., for reduction of fares to members attending the meetings of the Association, closed the proceedings of the evening, and the meeting adjourned.

The next meeting will be held at St. Catharines, on Tuesday, the 13th day of October, 1868, in the Town Hall, commencing at 11 o'clock, a.m., to continue through the day and evening. The Directors will meet on the 14th. By arrangement with the Great Western Railway Co., members attending the meeting at St. Catharines will receive a certificate that will enable them to return at one-quarter fare.

In another issue we hope to give, in full, the President's Address, the Prize Essay, by Mr. Beadle, and other interesting documents for which we have not space in the present number.

Apple Trees Killed by Frost.

To the Editor of THE CANADA FARMER:

SIR,—According to promise, I now send you a list of my apple tree losses from the severity of last winter. The trees were planted two years ago last spring, and had done exceedingly well. Indeed, I had not previously lost a tree.

It will be easily seen which are the tender and which the hardy varieties. A few would have died from bark splitting, but at the same time they are blighted and dead. The following list shows the different varieties that were winter-killed:

261	trees	R. I. Greening,	frost-killed	49
151	"	Baldwin	"	95
140	"	King of Tomkins Co.	"	86
75	"	Ribston	"	28
25	"	Bellflower	"	14
50	"	Roxbury Russet	"	0
20	"	Fall Pippin	"	7
20	"	Twenty-ounce	"	4
10	"	Red Astrachan	"	0
10	"	Early Harvest	"	0
5	"	St. Lawrence	"	0
5	"	Kentish Filbasket	"	2
25	"	Spitzenberg	"	0
50	"	Colvert	split	2
50	"	Golden Russet	"	2
45	"	Fameuse	"	8
942				297

More than the above list are damaged; those given are beyond recovery. A correspondent in a late number of the CANADA FARMER wrote favourably of King of Tomkins County as the apple for Canada. They have stood the worst of all with me, and a friend remarked to me a day ago that he had lost every one of his King of Tomkins County apples. Older trees of same varieties have stood better.

Last winter was about the coldest known in this region. The following are the registered degrees at and below zero: Dec. 12th — 5°; 13th — 4°; 14th — 16°; 19th — 12°. January 12th, 0; 17th—8°; 22nd, 0; at noon — 2°; 27th — 13°; 28th—4°. Feb. 3rd — 20°; 7th — 12°; 8th — 3°; 11th — 14°; 14th — 16°; 17th — 8°; 22nd — 12°; 29th, 0. March 2nd — 2°, — 5° at noon; 3rd—28°; 4th — 14°; 5th, 0. Only twice at noon did the thermometer fall below zero. To this extreme cold and sudden great changes of temperature do I ascribe the loss of so many of my trees.

I have no doubt, if the trees had been older and more set in their growth, but little damage might have been done. I see all of the varieties growing by different individuals, from twelve to sixteen years planted, with little damage. There are none of King of Tomkins County of that age yet. J. McL.

New Mode of Destroying Wasps.

WASPS have been rather plentiful. I have for several years adopted a very simple, but very effectual, plan of getting rid of their nests. When I find a nest, I select the noon of a hot sunny day for my operations. I procure a very strong solution of cyanide of potassium, and I saturate a piece of lint, about three or four inches square, with the solution. This lint I quietly place at the outlet of the hole leading to the nest on the ground, in a bank, or elsewhere. Nothing more is requisite. Every wasp that arrives at the hole on its descent alights on the lint, and, after one or two gyrations, drops over the edge of the lint into the hole, dead, or else dies upon the lint—not one escapes. After sitting down by the side, watching the operation for about ten or fifteen minutes at most, the number of wasps arriving home becomes very much lessened, and then only a few odd ones arrive. I then dig out the nest. All are destroyed. There is no fuss, no risk of being stung, as every wasp coming home falls on the fatal lint, and has no escape. The evaporation of the cyanide is very rapid, and the air all around the hole is tainted, and the wasps seem fascinated by it, as I never see any turn away; they look as if they must settle, and when once they alight they have no power to raise themselves, the use of the wings is gone, and they are soon dead from the inhalation of the cyanide. This is a very simple way of destroying the nest, because if you do not wish to take the nest, you may leave the lint there; it will destroy all the nest, and will do no harm to anything else.

When the nest is in a tree, I generally go in the evening, and hold the lint soaked in the cyanide under the bottom hole. The wasps soon begin to drop out, first one by one, then in a regular shower. Of course caution must be used to avoid the inhalation of the cyanide, but as so little is required, it is not very probable any accident will result from the proceeding.—*Cor. in Journal of Horticulture*

Entomology.

The Apple Worm.

TO THE DIRECTORS OF THE FRUIT GROWERS' ASSOCIATION OF ONTARIO.

THE apple crop this year will be a very short one. This is due in large measure to the depredations of the apple worm, which is the caterpillar of a pretty little moth named "*Carpocapsa pomonella*," an insect, alas! far too familiar to the orchadist in its larva or caterpillar state, though but seldom seen in its perfected condition. Anything relating to this pest will at this season be deemed interesting, and while we may not advance much that is actually new, it is well where so much is at stake to be reminded from time to time of facts partially or wholly forgotten.

I believe all authorities agree that this insect passes the winter in its chrysalis, or inactive state, generally lodged in the crevices in the bark of trees, or in some other secure retreat. From the middle to the end of June the moths make their appearance, concealing themselves during the day, flying only at night. Late in June and early in July, they pair, and soon after deposit their eggs. Usually one egg only is attached to the eye, or blossom, end of the fruit, but occasionally they are fastened about the base of the stalk, for I have several times when cutting into fallen fruit found the worm which had eaten into the apple from this point. Mr. Walsh, State Entomologist for Illinois, has found two in a single apple, one of which entered at the eye, the other at the stem. I found this year what I believe to be a similar example, though the worms had left. Besides the usual channel from the eye to the core, there was in this instance another from the stem in the same direction, and there were two holes through which the castings of the worms had been pushed, one about half an inch from the stem—the other on the side of the fruit. In this instance the whole of the seeds had been consumed, and a large portion of the apple.

Mr. Walsh has also found specimens which had been attached to the cheek of the apple, and made their entrance from that point, but these are all exceptional cases.

In a few days the egg is hatched, and the worm at once begins to burrow into the fruit, making its way towards the core, pushing its castings, which appear like a brownish powder, through the orifice by which it has entered. When it reaches the centre of the fruit it devours more or less of the seeds, and after a while eats a channel through the side of the apple, at the orifice of which its castings and refuse are now thrust out, and through which the caterpillar, when full grown, makes its escape.

In about three or four weeks it comes to maturity, and is then a little more than half an inch long, of a pale reddish or flesh colour, with a small reddish brown, horny looking head, and a patch of the same color and appearance on the upper part of the first segment or ring behind the head. There are also a few faint brown dots, and fine short hairs on each ring, but these can scarcely be seen without a magnifying glass. It has six hook-like feet, and five pairs of fleshy legs, by which it can readily be distinguished from the grub of a curculio, or any beetle, these latter being furnished with only the six hook-like feet. It also spins a silken thread, by which it can let itself gently down from any height.

In some instances the worm leaves the fruit before it has fallen, but in most cases I believe they do not make their exit until after the apple has dropped; it is not, however, then long delayed. Here is a matter that should be noted, for if the apples are to be gathered with a view of destroying the worms, a daily visit should be made to the orchard for this purpose, for it is labor lost to gather the fruit after the grubs have left. The worm usually finds its way to the nearest tree, oftentimes to the tree from which it has dropped, where having lodged in some obscure retreat, it envelops itself in a thin, whitish, silken cocoon.

Within the cocoon is the chrysalis, which is of a reddish brown colour, with two rows of small spines on each of the middle segments, and one row on the hinder ones. By means of these spines it works its way through the cocoon before the moth escapes.

The moth, when its wings are expanded, will measure nearly three quarters of an inch. Its fore wings are dark grey, streaked across with brown, with a large patch of brown on the end of each wing, tapering towards the tip, and having a horse-shoe mark of a metallic or satin lustre in its centre. The hind wings are pale reddish brown, with a satin-like lustre.

There has been some uncertainty among American entomologists as to whether there are one or two broods of this insect during the summer. In Europe, from whence the moth is derived, it has long been regarded as double-brooded, and of late Mr. Walsh has shown that such is the case in this country, at least in his locality, Illinois. My own experience leads to a similar conclusion. I have this year reared the moth early in August from fruit gathered late in July, and have found young specimens of the worm again quite late in August. Mr. Walsh has observed that as a rule the first brood attack the early apples, while the second brood infest chiefly the later ones.

We come now to the practical bearing of these remarks, and enquire what remedies have been proposed and tested to check the ravages of this little pest? One method recommended, and which has already been referred to, is very good as far as it goes—it is to gather the fallen fruit and destroy the grub by dipping it in boiling water; or turn pigs into the orchard to eat the fruit as it falls. But this does not reach the worms which had left the fruit before it dropped, and there are doubtless many other specimens that escape by making their exit almost immediately after the fruit reaches the ground. The remedy proposed to reach these, and which originated with Dr. Trimble, of New Jersey, consists of hay ropes wound round the trunks of the trees, two on each tree, one two or three feet higher than the other. This acts as a decoy, affording them retirement and shelter; they make it their hiding place in which to spin their cocoons. By carefully examining these ropes every few days during the season large numbers of the culprits may be secured, in both worm and chrysalis state, and their ranks terribly decimated. It is stated that as many as a thousand have been taken in a season, in this manner, from one tree, and where it has been thoroughly tried along with the first method referred to, good crops have invariably resulted. Pieces of old cloth and various other fabrics have been used in place of the hay ropes with very good results. Complete extermination can hardly be looked for, since with the best of management a few will probably escape; but let the fruit grower do his duty, and with the help of birds and insects who prey upon these and similar creatures, there need be little fear of their depredations becoming formidable.

The same insect affects the pear, and destroys large quantities of this valuable fruit every year; the remedies are the same as in the case of the apple.

There is another species of grub destructive to the apple, but I am not aware that it has ever yet been found in Canada, although it has proved very troublesome in Massachusetts, Connecticut and New York. It is called the apple maggot, and is the larva of a two-winged fly, named by Mr. Walsh *Trypeta pomonella*. It is very different in appearance and habits from the common apple worm. It is a greenish white, footless grub; there are often six or more in an apple, and they do not burrow into the core, but eat channels through the flesh of the fruit. Should this insect make its appearance in any part of Canada I should like to receive specimens of it.

W. SAUNDERS.

Hair Snakes.

WE have received a rather long communication from "Zebra," accompanied by a bottle containing a lively specimen of a parasitic worm commonly called a Hair-snake (*Gordius Aquaticus*), together with an intertwined mass of its thread-like young. As we have already noticed this singular animal in the CANADA FARMER for Jan. 15, 1868, page 28—to which we refer our correspondent—and as our columns are at present much crowded with other matters, we are obliged to dismiss this subject very briefly, and omit "Zebra's" interesting account of the birth and proceedings of this strange little family. He will find his specimens awaiting him at our office, but if he does not care to preserve them himself, we should like to add them to our own collection of alcoholic specimens. We may mention that the specimen we received from Mr. Arnold lived for upwards of six months in a bottle, the water being changed at long intervals.

CECROPIA CATERPILLAR.—J. H., of North Keppel, lately sent us a specimen of this fine insect well packed in a tin box, and with some of its appropriate food—the way in which we like to receive all our specimens. He found it on an apple tree, and was naturally much struck with its size and beauty; on its way to us it spun up in the box and formed its large silken cocoon. He will find a notice of it in our last number, page 278.

Poultry Yard.

Poultry at the Provincial Exhibition.

The arrangements made for the poultry department were far in advance of the accommodation provided at any former Provincial Show, the pens being admirably arranged under a covered shed, enclosed by open battens, with doors at each end and one side. This enabled the judges to make their examination without being interrupted by visitors. As regards the coops, they would have been better not quite so deep from back to front, and with a step or some means for a proper inspection of the upper tier.

We were glad to see the Dorking classes in the ascendant, some chickens especially of this variety being very fine. Messrs. Peters, Bogue and Rykert had some excellent specimens, and gained prizes.

Polands and Hamburgs were not quite so well represented, and there can be no doubt that some importation of fresh blood from the old country is very necessary. Some fine white chicken Polands were shown by Mr. Bogue, of London; but, unfortunately, being entered in the class for adults, they were excluded from a prize.

In Buff Cochins the absence of the remarkably fine display that graced the last Exhibition in Toronto, and has been quite a feature in the Shows of the Poultry Association, was very noticeable. The dispersion of Col. Hassard's birds greatly reduced the Hamilton Show in this class, though some of them in other hands, or the progeny of his stock, made themselves known in the recent Exhibition. Some young birds were shown by Mr. Roach, of Hamilton, and among them the most beautiful colored pullet we have ever seen. The cockerel shown with her was equally meritorious, and for stock purposes they could not be better matched; but for exhibition, as the colors did not agree, they had to surrender the first prize to Mr. Rykert, who also obtained the same for adults, all very fine birds. White Cochins were not represented.

In the Light Brahma class there were some handsome pullets. Mr. Rykert had some very good birds of this variety. The Dark Brahmas were not represented at all.

French varieties were not forthcoming.

The Sebright Bantams were few, but good samples, although we should prefer them smaller. All the best birds in this class were shown by W. & J. Peters, of London. There were some good chickens of this variety. Other varieties of bantams deserve no special mention. The black were the best, but deficient.

We were disappointed in the specimens of Game birds, which were far behind those of the last exhibition in Toronto. Exhibitors in this class would do well to be more careful in matching the birds correctly, and seeing that the legs of both birds agree in color, as a want of correspondence in this respect is at once a disqualification.

We now have to mention the Spanish class, which we think a most meritorious one; such hens as those exhibited by Mr. Hincks (of Toronto), have, we opine, never been seen in Canada before. Some persons even expressed the opinion that their faces were enamelled or painted. It is to be regretted that an accident happened which prevented a pair being shown in the second pen exhibited by that gentleman; but the single hen was highly commended—and we think the judges might have placed a "very" before it. Other exhibitors showed good specimens, but all should in this class take knowledge of what Spanish fowls' faces should be.

Mr. Rykert, (St. Catharines), and Mr. Barnes, (St. Thomas) gained second and third prizes for very fine birds.

Some fowls of doubtful purity were shown in the adult "any variety" class; but in the chickens some good Leghorns were shown by Mr. Rykert, and in the extra some good Dominiques by Mr. Herning, of Waterdown.

All the common Turkeys were good; but the wild were not up to the standard in any way. We hear that some dissatisfaction manifested itself respecting the amount of the awards in this class. We must say we agree with the awards of the judges, the only approach to the real wild turkey of Western Canada being in the pen for which the second premium was awarded. The first prize was withheld. The other pairs in the Wild Turkey class should have been entered in class 20, when they would have been in their right places. We hope shortly to give the points of the wild Turkey, very carefully prepared by Col. Hassard, with some remarks by that close observer and enthusiastic poultry fancier, on the variations caused by the accidental mixture of wild and domestic birds.

Geese were few but good, especially those shown by Mr. Cullis, of Hamilton, and Mr. Barnes, of St. Thomas.

Aylesbury ducks were below the standard.

The Rouens were very few but very good. Those exhibited by Mr. Peters well deserved the prizes awarded for them. Other kinds were also good.

Some Guinea and Pea fowls were shown in fair condition for the time of year, and deserved their awards, but the pens were sadly too small for the large birds.

In pigeons there were few exhibitors, and the specimens deserved no special commendation.

We regret to see that the Rabbits were passed over without any premiums. We think this could hardly have been otherwise, as even in the common sorts better marked and sized animals should have been exhibited to obtain premiums.

The Judges in this class were Col. Hassard, Messrs. A. M. Howard, Miller, Finch, and Van Ingen, and they evidently acted upon what we believe to be a a new rule (39 in the prize list), and abstained from awarding premiums to the best of a bad lot. Granting prizes at all events, even for most unworthy specimens, because no better were shown, has been too much the custom at Provincial Shows; but when we look at the object of these exhibitions, which is the improvement of stock, &c., we cannot but think the principle a correct one, and that if specimens were not up to the mark they should only be awarded premiums according to their deserts.

We congratulate the Society on this part of the Exhibition, and we cannot but perceive that the Ontario Poultry Society's efforts to improve the breed of fowls has not been in vain. We hear that Mr. Lamb, one of the largest London exhibitors, was prevented through illness from sending his specimens. Some pens were consequently empty; had they not been this would have probably surpassed any former Provincial Show. As it is, London, in the persons of Messrs. Peters and Bogue, contributed most largely and meritoriously to the recent Exhibition.

Freak of Nature.—A Turkey, on the farm of Rotherwood, Georgina, was set to hatch eleven eggs, in order to propagate her breed, but she left her charge, and to the surprise and great interest of the family, as well as people in the neighbourhood, a *turkey cock* was seen to take possession of the nest and eggs; he sat constantly on the eggs till he hatched six poults, which he tends with parental pride.

The Household.

☞ The three best medicines in the world are warmth, abstinence and repose.

A Bright Idea.—When Jemima went to school, she was asked why the noun "bachelor" was singular? "Because," she replied, "it is so very singular that they don't get married."—*American Paper.*

Preservation of Leather.—A contributor to the *Shoe and Leather Reporter* gives some valuable hints in relation to the preservation of leather. The extreme heat to which most men and women expose boots and shoes during winter deprives leather of its vitality, rendering it liable to break and crack. Patent leather particularly is often destroyed in this manner. When leather becomes so warm as to give off the smell of leather, it is singed. Next to the singeing caused by fire heat, is the heat and dampness caused by the covering of India rubber. India rubber shoes destroy the life of leather. The practice of washing harness in warm water and with soap is very damaging. If a coat of oil is put on immediately after washing the damage is repaired. No harness is ever so soiled that a damp sponge will not remove the dirt; but, even when the sponge is applied, it is useful to add a slight coat of oil by the use of another sponge. All varnishes and all blacking containing the properties of varnish should be avoided. Ignorant and indolent hostlers are apt to use such substances on their harness as will give the most immediate effect, and these, as a general thing, are most destructive to the leather. When harness loses its lustre and turns brown, which almost any leather will do after long exposure to the air, the harness should be given a new coat of grain black. Before using this grain black, the grain surface should be thoroughly washed with potash water until all the grease is killed, and after the application of the grain black, oil and tallow should be applied to the surface. This will not only "fasten" the colour, but make the leather flexible. Harness which is grained can be cleaned with kerosene or spirits of turpentine, and no harm will result if the parts affected are washed and oiled immediately afterward. Shoe leather is generally abused. Persons know nothing or care less about the kind of material used than they do about the polish produced. Vitriol blacking is used until every particle of the oil in the leather is destroyed. To remedy this abuse the leather should be washed once a month with warm water, and when about half dry, a coat of oil and tallow should be applied, and the boots set aside for a day or two. This will renew the elasticity and life in the leather, and when thus used upper leather will seldom crack or break. When oil is applied to belting dry it does not spread uniformly, and does not incorporate itself with the fibre as when partly damped with water. The best way to oil a belt is to take it from the pulleys and immerse it in warm solution of tallow and oil. After allowing it to remain a few moments the belt should be immersed in water heated to one hundred degrees, and instantly removed. This will drive the oil and tallow all in, and at the same time properly temper the leather.

Rats.—Rats originally came from Norway, and I wish they had originally staid there.

They are about as uncalled for as a pain in the small of the back.

They can be domesticated dredful easy, that is az far as getting in cupboards and eating cheese and knawing pie is concerned.

The best way to domestikate them that I ever saw is to surround them gently with a steel trap; yon can reason with them to great advantage.

Rats are migratious—they migrate whenever they have a mind to.

Pizen is also good for rats—it softens their moral nature.

Cats hate rats, and rats hate cats, and—who don't?

I suppose there is between fifty and sixty millions of rats in America, but I quote entirely from memory—and I don't suppose there is a single necessary rat in the whole lot. This shows at a glance how many waste rats there iz.

Rats enhance in numbers faster than shoe pegs do by machinery. One pair of healthy rats is all that any man wants to start the rat business with, and in ninety dais, without any outlay, he will begin tew have rats—tew turn oph.—*Josh Billings.*

Poetry.

After.

After the shower, the tranquil sun;
After the snow, the emerald leaves,
Silver stars when the day is done;
After the harvest, golden sheaves.

After the knell, the wedding bells;
After the bud, the radiant rose;
Joyful greetings, from sad farewells
After our weeping, sweet repose.

After the burden, the blissful meed;
After the flight, the downy nest;
After the furrow, the waking seed;
After the shadowy river—rest

—*Round Table.*

Katy did.

Throughout the night I hear the cry go up toward the stars.
And the answer, in denial, seeme to beat against the bars
That lie across the gates of pearl, as surf beats on the shore,
And the night rings with a pleading I have never heard before.

For though full oft the Katy-did its bold assertion made,
And still the prompt denial rang throughout the willow glade,
To-night they seem to hold in tune the harmonies of song,
And, half forgetful of the hours, I linger late and long.

But who has known what Katy did? and when was it all done?
How long will the contention last? When was it first begun?
When David watched his father's flocks, upon the verdurous plain,
I wonder if he heard their cry with pleasure or with pain.

Or when adown the sacred Nile swept Cleopatra's barge,
I wonder if the Katy'a cry rose from the Lotos marge,
Was Cheops, as his eye surveyed the mighty Pyramid,
Still puzzled with the query as to what poor Katy did?

Since Clio's page no record shows—since Thalia's lips are sealed—
It scarce can matter to us now though it were all revealed.
Oh, Katy! whether true or false, there's one thing that I know
It all should be forgotten, since it happened long ago.

Miscellaneous.

The New London Dog Law.—A good anecdote relative to Sir Richard Mayne's law of muzzling dogs is in circulation at the clubs. An officer of the Guards went out the other day with a favourite dog with a muzzle fastened on his tail. He had not gone far before he was accosted by a policeman, who told him that as his dog was unmuzzled he should take it up and detain it. This the officer in question defied him to do, maintaining that as his dog had a muzzle on his tail he had complied with Sir Richard Mayne's order, because it was not stated where the muzzle was to be placed on the dog. This so fairly baffled "the intelligent policeman" that he at once gave way, and let the Guardsman depart in peace with his faithful companion.

THE WORLD.

"It's a very good world to live in,—
To lend, to spend, or to give in;
But to beg, or to borrow, or recover one's own,
It's the very worst world that ever was known."

So some cynical individual has written. It may be true, but it is also true that this is the best world as yet known by us. It is barely possible that the cynical souls may go further and fare worse. Let us hope not. *Ex.*

Advertisements.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-1f

MONTREAL VETERINARY SCHOOL

IN CONNECTION WITH MEDICAL FACULTY OF

McGILL UNIVERSITY,

UNDER THE PATRONAGE OF

THE BOARD OF AGRICULTURE,

PROVINCE OF QUEBEC.

(ESTABLISHED 1866.)

CLASSES.	LECTURERS.
Anatomy of Domestic Animals,	D. McEACHRAN, M.R.C.V.S.
Botany	PRINCIPAL DAWSON.
Institutes of Medicine (Physiology and Histology,)	PROF. FRASER.
Chemistry (Theoretical and Practical,)	PROF. CRAIK.
Veterinary Medicine and Surgery,	D. McEACHRAN, M.R.C.V.S.

Practical instructions daily. Dissection during the Session. Lectures commence 12th November.

☞ For Particulars apply to

GEO. LECLERC, Esq.,
Sec. Bd. of Agriculture.
Or to D. McEACHRAN, V.S.,
v5-18-4f. 607 Craig St., Montreal.

FRUIT AND ORNAMENTAL TREES

FOR FALL OF 1868.

We have the pleasure of announcing that we are prepared for the Fall Trade with an unusually large and well grown stock, embracing

Standard and Dwarf Fruit Trees.

Grape Vines, new and old sorts, strong open ground plants.
Currants, Raspberries, Blackberries, and all the smell fruits.

ORNAMENTAL TREES AND SHRUBS,

Roses and Flowering Plants of every description.

Nurserymen, Dealers, and others, purchasing largely, will be dealt with liberally, and all orders, however small, will receive prompt and careful attention. Parties interested will do well to consult the following Catalogues, which are just issued, and will be sent prepaid on the receipt of 10 cents. each, for Nos. 1 and 2, and 5c. for No. 3.

☞ No. 1, Descriptive and Illustrated Catalogue of Fruits. No. 2. Descriptive and Illustrated Catalogue of Ornamental Trees, &c. No. 3, Descriptive Green House Plants. No. 4, Wholesale Catalogue, FREE.

ELWANGER & BARRY.
Mount Hope Nurseries, Rochester, N. Y.
v5-17-3t.

FALL PLANTING.

TORONTO NURSERIES.

The attention of Purchasers is directed to our large and unusually fine Stock of

Fruit Trees, Ornamental Trees, Flowering Shrubs, Grape Vines, (Foreign and Hardy Varieties,) **Currants, Gooseberries, Strawberry Plants, &c.,**

All grown with a view to suitability to the climate of Canada.

We pack in a manner to ensure safe transportation to the most distant parts.

Priced Descriptive Catalogues sent to applicants enclosing a 2-cent stamp for postage.

Address all Orders and Letters to

GEO. LESLIE & SON,
Leslie P. O.

☞ Observe in Prize List the large number of First Prizes awarded our productions at the Provincial Exhibition.

v5-19-1t.

WINDSOR NURSERIES.

The Stock of **FRUIT TREES, &c.,** for Fall planting, is very fine and well grown, particularly the Dwarf Pears and Dwarf Apples, the cultivation of which is made a specialty.

Persons intending to plant Trees, should, before purchasing elsewhere, send at once for a priced Catalogue, which will be sent free; also, for a copy of the

CANADIAN FRUIT CULTURIST,

Sent free by mail for 25 cents, giving full instructions for the proper location, preparing the ground, planting and after cultivation of all kinds of Fruits; and Descriptive Lists of the best varieties suitable for the different sections of Canada.

JAMES DOUGALL, Proprietor.
Windsor, Ont., 1st Oct., 1868. v5-19-1t.

FRUIT GROWERS'

INTER-PROVINCIAL PRIZE.

The Fruit Growers' Association and International Show Society of Nova Scotia offer a Prize, consisting of a

GOLD MEDAL AND ONE HUNDRED DOLLARS

in money, for the best collection of APPLES, six of each sort, grown in any Province of the Dominion, to be competed for at the Great Agricultural and Industrial Exhibition, which will open

In HALIFAX, on the FIFTH day of OCTOBER

next; the competition to be subject to the general regulations of the Exhibition, and Judges to be appointed by the Association.

By order,
J. R. HEA,
Secretary.
Wolfville, N. S., 20th August, 1868. v5-19-1t.

FUNDS FOR INVESTMENT.

The Trust and Loan Company, of Upper Canada, have funds for investment, at their usual rate of interest, on the security of improved real estate.

Loans made for fixed periods, or repayable by annual instalments.

Further and full information can be had from the Valuators in each locality, by letter addressed to the Commissioners at Kingston, from

MESSRS. PATTON, OSLER & MOSS,
Or J. W. G. WHITNEY, ESQ.,
v5-18-2t Toronto.

IMPORTANT

AUCTION SALE

OF PURE BRED

SHORT-HORNED CATTLE

AND

LEICESTER SHEEP.

The Subscriber has received instructions from Mr. Wm. Douglas to offer for Sale by Auction, at his farm, **Lot No. 80, Township of Onondaga**, four miles West of the Caledonia Station of the H. & L. H. R., on **Thursday, the 15th Oct., 1868**, the following valuable stock:

Three Cows in Calf; two Heifers, two years old, do.; three Heifer Calves; five Bull Calves; one Grade Cow; one Grade Heifer, two years old; twelve pair Shearling Leicester Ewes; eight pair Ewe Lambs; six Rams, and eight Ram Lambs. Full Pedigrees of the Durhams will be furnished at sale.

Terms of Sale:—Twelve months credit will be given on furnishing approved endorsed notes.

☞ Sale to commence at eleven, a. m.

HENRY PEATMAN,
Auctioneer.
Onondaga, Sept., 1868. v5-18-2t

FOR SALE, THE THREE-YEAR OLD

DURHAM BULL,

Belonging to the Glenvale Club, sired by that thorough-bred Durham Bull the "Red Rover," owned by William Starks, Esq., of Pittsburgh. The Stock of this Bull has given general satisfaction to the Club and all others that have had any of the Stock.

The Bull can be seen at any time at the Residence of Robert Gibson, Esq., Township of Kingston. If not sold before the County Show, he can be seen on the Show Grounds on that day.

JOSEPH DAVIDSON, President.
Glenvale, Oct. 1, 1868. v5-19-1t

IMPROVED BERKSHIRE PIGS,

THOROUGHBRED, and from get of Imported and Provincial first prize animals.

☞ **One Litter for Sale at LOW FIGURES.**

J. F. CASS,
v5-18-2t* L'Original, C.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

Destroys the Ticks; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.
v4-14-1f

THE BRIGHTEST

ITALIAN QUEENS

IN AMERICA.

Having IMPORTED three extra-fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale. Price as usual, $5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. B. hive $18—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS,
Apiarian,
Brooklin, Ontario.
Aug. 1, 1868, v5-15-1f

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

The cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,
v4-20-1f Port Dover, Ont.

THE BEST SHEEP MARK YET INVENTED.

It is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr.,
Sarnia, Ont.
☞ N. B.—AGENTS WANTED. v5-18-1f-e.o.t.

THE AMERICAN ENTOMOLOGIST.

THE AMERICAN ENTOMOLOGIST, edited by BENJ. D. WALSH and C. V. RILEY, State Entomologists respectively of Illinois and Missouri, and copiously illustrated, treats of all kinds of Noxious and Beneficial Insects. It will be found invaluable to every Farmer, Gardener, and Fruit-grower, and to every one taking an interest in the fascinating study of Entomology. Terms, $1.00 per annum. The first number will appear September 1st. Sample copies and prospectus sent on application. Send in your subscriptions to

v5-19-tf. **R. P. STUDLEY & CO., Publishers, St. Louis, Mo.**

THE FALL CAMPAIGN of MOORE'S Rural New-Yorker,

the Leading and Largest-Circulating RURAL, LITERARY and FAMILY NEWSPAPER, begins a Quarter Oct. 3, and hence *Now is the Time to Subscribe!* Eight Large Double-Quarto Pages, illustrated, with over a dozen distinct Departments, each ably conducted, the best Talent being employed. Election will soon be over, when everybody, in both Town and Country, will want the most Progressive, Timely, Entertaining and Useful Weekly of its Class—MOORE'S RURAL. The 13 Numbers of this Quarter (Oct. to Jan.) sent, *On Trial*, for Only FIFTY CENTS! Try the Trial Trip! Address

D. D. T. MOORE,
41 Park Row, New York, or Rochester, N. Y.

v5-10-1t.

THE "DEXTER CIRCULAR," after six months' trial, is pronounced the most wonderfully quick method ever discovered to make any untrained horse or colt trot fast without the use of a track. One boy made $900 on two common colts; $1,200 on another. Price $1. Address, Geo. A. ATKINS, 2 Dey St., N. Y.

P. S.—"We recommend every farmer's immediate attention to this circular." J. W. Forman, Troy Mills, Iowa; O. J. Brazee, Egremont, Mass; Charles Palmer, Hillsdale, N. Y.; John Gildersleeve, Austerlitz, N. Y.; Russel Tremain, Postmaster, Green River, N. Y., and a hundred others. v-5-18-4t

TO INTENDING BEE-KEEPERS.

A few Stocks of Bees, this year's increase of the

EDITORIAL APIARY,

are for Sale on the following terms:

ITALIANS IN THE THOMAS' HIVE; WITH RIGHT.			$18.00
HYBRIDS	Do.	Do.	$12.00
COMMON BEES	Do.	Do.	$10.00

The above prices are for single-boarded hives; double-boarded ones will be charged $1.00 extra. Bees packed and shipped on G. T. R. or G. W. R. to any point desired.

Orders accompanied with the money, to be addressed

REV. W. F CLARKE,
Editor CANADA FARMER,
v5-19. GUELPH.

COTSWOLD and SOUTH-DOWN RAMS.

Moreton Lodge, Guelph, Ontario.

ANNUAL SALE OF PURE-BRED STOCK.

MR W. S. O. KNOWLES, begs to announce, that he has received instructions from Mr. FREDERICK WM. STONE, to Sell by Auction, on Thursday, the 15th day of October, 1868, at Moreton Lodge,

30 GRAND COTSWOLD RAMS.
10 SPLENDID SOUTH-DOWN RAMS.

At which time will also be offered,

30 Famous Cotswold and South-Down Ewes, and about 25 Improved Berkshire Pigs, Boars and Sows, principally bred from importations in Oct. last. Sale to commence at 1 p.m., prompt.

Moreton Lodge, Guelph, Oct. 2, 1868. v5-10-1t.

SHORT HORN BULL,

OF THE "DUCHESS" TRIBE,

FOR SALE.

9TH DUKE OF THORNDALE.

ROAN, bred by Samuel Thorne. Calved August 20th, 1864. Got by 6th Duke of Thorndale, 4752, (see note.)—out of 5th Duchess of Thorndale, by Imperial Duke, (18083) 3d Duchess of Thorndale, by imported Duke of Gloster, (11382)—Duchess 66th, by 4th Duke of York (10167)—Duchess 55th by 4th Duke of Northumberland (3049) Duchess 38th by Norfolk (2377)—Duchess 33d by Belvedere(1706)—Duchess 19th by 2d Hubback (1423)—Duchess 12th by The Earl (646)—Duchess 4th by Ketton 2d (710)—Duchess 1st by Comet (155)—by Favourite (252)—by Daisy Bull (186)—by Favourite (252)—by Hubback (319)—by J. Brown's Red Bull (97).

NOTE.—6th Duke of Thorndale, 4752—bred by Mr. Thorne, and sold for $5,000. Got by 2d Duke of Thorndale (11740)—out of 4th Duchess of Thorndale by 2d Grand Duke (12961)—Duchess (——) by Duke of Gloster (11382)—Duchess 66th by 4th Duke of York (10167)—Duchess 55th by 4th Duke of Northumberland (3049)—Duchess 38th by Norfolk (2377)—Duchess 33d by Belvedere (1706) Duchess 19th by 2nd Hubback (1423)—Duchess 12th by The Earl (646)—Duchess 4th by Ketton 2d (710)—Duchess 1st by Comet (155) etc., as above.

9th Duke is in the best condition, a very quick server—perfectly sure getter—his dam is from the same cow that dropped 11th Duke of Thorndale, now the property of M. H. Cochrane, Esq.,—will be sold low for want of use. For particulars address

H. G. WHITE,
SOUTH FRAMMINGHAM,
v5-19-1t. Middlesex County, Mass. U.S.

Markets.

Toronto Markets.

CANADA "FARMER" Office, Sep. 30th, 1868.

The Produce Market during the past fortnight has continued quiet; except in barley there has been little doing. The barley market has been very irregular, rising and falling in sympathy with Oswego.

FLOUR AND MEAL.

Flour.—The market has been unusually quiet; very few lots have been offering, and there has been little or no desire to buy. Some buyers will not give over $5 40; holders refuse to sell at anything less than $5 50. In the higher grades of flour there has been a few lots selling; a few 100 bbl lots of extra sold at $6 50; and of superior at $7. Fall wheat flour is scarce and finds ready sale.

Oatmeal.—Selling in small lots at $6 50.

Cornmeal.—Only a small trade doing; prices range from $4 to $4 50.

Bran.—Selling at $15 per ton.

GRAIN.

Wheat.—The market has been decidedly dull since our last report. No sales of any importance have taken place. Spring wheat has been offering rather more freely, but the demand is so limited that no sales take place. Holders ask $1 18 to $1 20 for spring, in car or cargo lots, but there are no buyers except in a few cases at over $1 16 to $1 16. The demand is only from local millers, who will only buy sufficient to supply the wants of local consumption. Fall wheat is in better demand, and sells readily in car lots at $1 35 and $1 38. Very few lots of Fall are offering. The street market is beginning to be fairly supplied. The following are the street prices which have been paid. Spring, $1 16 to $1 16. Fall white, $1 30 to $1 35.

Oats.—The market has been firm. Car lots offering sold freely at 51c. on the track. On the street market 53c. was freely paid for good samples.

Barley.—The market since our last review has been very irregular, advancing and declining alternately in sympathy with Oswego. Prices are, however, now fully 3c. to 10c. higher than they were a week ago. Yesterday the market took a start and advanced 6c. Car and cargo lots were to-day selling freely at $1 18. The sales to-day were 5,000 bushels at $1 18 f. o. b., 3,000 bushels at $1 17 f. o. b.; two cars at $1 18 f. o. b.; 7,000 bushels in car lots at $1 18 f. o. b. The market closes very firm at $1 18 f. o. b. On the street market there was a fair business doing. The receipts, however, do not come up to what is usual at this time of year. During no day last week were there over 35,000 bushels brought in by farmers, and the average receipts from farmers would not amount to over 18,000 or 20,000 bushels per day. Prices on the street kept steadier than on 'Change. To-day $1 17 to $1 18 was the price paid for ordinary samples. A few choice samples brought as high as $1 19½.

Peas.—The market has been very quiet. There were no wholesale transactions reported. On the street market 01 cents was the price.

Rye.—Only a few loads coming in from farme, s' waggons. Buyers are paying 80 cents on the street market.

HAY AND STRAW.

The market has been fairly supplied. Hay has been selling at from $12 to $16, and straw at from $7 to $10.

PROVISIONS.

The market has been very dull. Butter and cheese are the only articles in which there is any animation.

Butter.—The shipping demand is steady, without any change in price. Round lots are selling at from 20c. to 21c. Dairy, in shipping lots, would bring 22c. Very few lots offering on the market; pound rolls bring from 22c. to 25c.

Eggs.—Very few coming in; selling only in a retail way, from 12½c. to 16c.

Cheese.—Held firmly at from 12c. to 13c.

Dressed Hogs.—Receipts are now considerable; selling at from $6 50 to $7 25.

Pork.—Very little in the market.

Bacon.—Nothing doing, except in a small way.

Salt.—Liverpool has been in good demand. Lots are now worth from 80c. to 90c. on the wharf. American, in barrel, sells at $1 60 on the wharf.

Wool.—Unchanged. Selling in small lots at from 26c. to 27c.

Hops.—There is a fair supply offering. We quote—New, from good to exam. per lb., 20c. to 25c; fair to good, do. 15c. to 20c.; old, 10c. to 15c.

Flax.—Is fair demand, but very few lots offering. There are buyers at $8 to $10 per 100 lbs.

THE CATTLE MARKET.

Beeves.—The market has been well supplied with all kinds of cattle, and there has been a fair demand, especially for first-class cattle for export. We quote per 100 lbs., dressed weight: 1st class, $6 to $6 50; 2nd do., $5 to $5 50; 3rd do., $4 to $4 50.

Sheep.—Have also been offering freely, and met with a ready sale at the following figures: 1st class, $4 to $4 50 each; 2nd do., $3 to $3 50; 3rd do., $2 to $2 50.

Lambs.—There has been a fair supply on the market, and the demand has also been good. All the lots offered found ready sale at the following prices: 1st class, $2 50; 2nd do., $2; 3rd do., $1 50.

Calves.—Scarce, and not much enquired for; worth from $5 to $8.

Live Hogs.—Several lots have been offering, principally from the west. Prices ranged from 5c. to 6c. per lb.

HIDES AND SKINS, per lb.—*Hides*, green, rough, per lb., 5½c.; do. green, inspected, 7c.; do. cured and inspected, 7½c. to 8½c. *Calfskins*, green, 10c.; cured, 12c.; dry, 18c. to 20c. *Lambskins*, green, 45c. to 50c. *Sheepskins*, 60c.

London Markets, Sept. 29.—Red Fall Wheat per bushel, $1 10 to $1 19½; white wheat, $1 15 to $1 20; spring wheat, $1 10 to $1 18; barley, $1 12½ to $1 15; peas, 89c. to 90c.; oats, 42c. to 43c.; butter in rolls, 23c. to 24c.; do. in tubs or crocks, 18c. to 20c.; lard per lb. 10c. to 12½c.

Galt Markets, Sept. 29.—The market is busy. No change in wheat, but tending downwards; considerable quantities coming in. Barley, 90c. to $1 10—a very good supply coming in but quality poor. Eggs, 12c. to 13c. Butter has risen very rapidly of late, 20c. to 23c. Potatoes, 75c. to 90c. per bush. Peas and oats scarce. Oats, 45c. to 52c. Peas, 90c. to 95c. Hay, $11.

Guelph Markets, Sept. 29.—Fall Wheat, $1 20 to $1 26; spring wheat, $1 10 to $1 14; oats, 50c. to 55c.; peas, 86c. to 90c; barley, $1 00 to $1 12; wool, 26c.; hides per 100 lbs., $6; beef, do. $7 to $8; pork, per 100 lbs., 00c. straw per load, $3; hay per ton, $10 to $11; eggs, per dozen, 12c. to 13c.; butter, per lb., 20c. to 22c.; apples, per bushel, 00c.; potatoes, per bag, $1 15 to $1 50; sheep skins, 46c. to 50c.

New York Produce Market.—*Flour*—Heavy, 10c. to 15c. lower—receipts, 17,000 barrels and 024 bags; sales, 5,700 barrels, at $6 30 to $7 15 for superfine state and western; $7 65 to $8 05 for common to choice extra state; $7 15 to $8 75 for common to choice extra western. *Rye Flour*—quiet, at $6 25 to $8 10. *Wheat*—2c. to 3c. lower; receipts, 55,500 bushels; sales 45,000 bushels at $1 55 No. 3 spring. *Rye*—quiet. *Corn*—About 1c. lower; receipts, 46,000 bushels; sales, 78,000 bushels at $1 12 to $1 15½ for unsound; $1 16 to $1 17 for sound mixed western. *Barley*—scarce and firm; receipts, 9,400 bushels. *Oats*—1c. lower; receipts 83,000 bushels; sales 41,000 bushels at 72½c. to 73c. for new western. *Pork*—a shade easier at $28 32 to $28 62 for new mess; $28 37 to $28 70 for old mess. *Lard*—Heavy and drooping at 18½c. to 19½c. for steam; 12½c. to 13c. for kettle rendered.

Contents of this Number.

	Page
THE MONTH:	289
THE FIELD:	
Agricultural productions of the Provincial Exhibition.	290
Implements at the Exhibition	290
Crops in Quebec	292
THE DAIRY:	
Dairy Implements and Products at the Exhibition	292
THE APIARY:	
Bees and Bee Hives at the Exhibition	292
CANADIAN NATURAL HISTORY:	
The Crested Grebe (with illustration)	293
Natural History Department of the Exhibition	293
STOCK DEPARTMENT:	
Stock at the Provincial Exhibition	293
CORRESPONDENCE:	
Sorghum; Bee Moths; Hawthorns	296
Chinese Yam; Peat; Cost of Building; Poison Ivy	296
EDITORIAL:	
The Provincial Exhibition	296
The Harvest	296
Quebec Provincial Exhibition	297
Montreal Veterinary School	298
Stock Sales	298
Inter-Provincial Fruit Growers' Prize	298
AGRICULTURAL INTELLIGENCE:	
Address of the President of the Provincial Association	298
Annual Meeting of the Provincial Association	299
Meeting of the Board of Agriculture	299
Entries in the Agricultural Department of the Exhibition	299
HORTICULTURE:	
Horticultural Products at the Exhibition	300
Annual Meeting of the Fruit Growers' Association	300
Apple Trees Killed by Frost	301
New mode of destroying Wasps	301
ENTOMOLOGY:	
The Apple Worm	30A
Hair Snakes; Cecropia Caterpillar	301
POULTRY YARD:	
Poultry at the Provincial Exhibition	302
Freak of Nature	302
THE HOUSEHOLD:	
Preservation of Leather	302
Rats	302

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for	NINE DOLLARS.
TWENTY COPIES for	SIXTEEN DOLLARS.
FORTY COPIES for	THIRTY DOLLARS.
ONE HUNDRED COPIES for	SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director

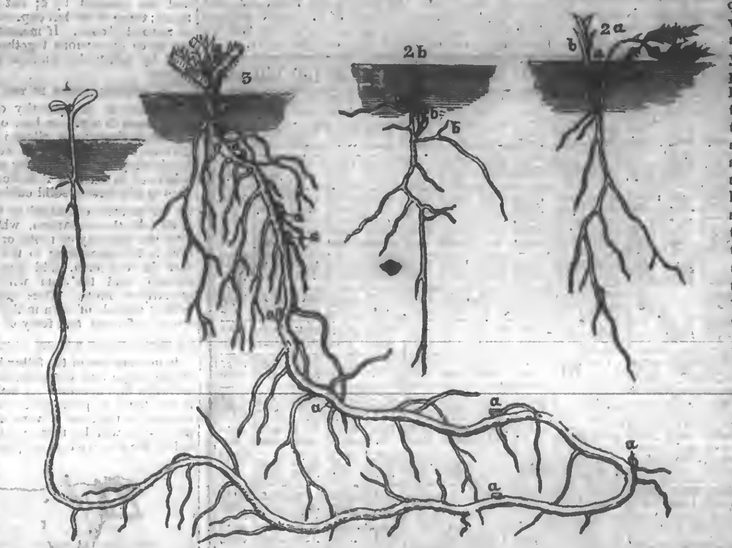
The Field.

Thistle Seedlings.

It will be seen by the following extract and accompanying illustration that an error somewhat prevalent in this country, and which has repeatedly been combatted in the CANADA FARMER, has not yet been rooted out of the old country. Our correspondent "Publicola," will be pleased to see a confirmation of the lesson he has more than once sought to inculcate on his brother farmers, in the following communication and editorial remarks from the *Agricultural Gazette*:—

"'There is a very strong opinion existing, not only here, but all over England, among many intelligent and practical men, that the common corn or wayside thistle will not grow from seed, or rather that it does not produce seed. As to myself, I am satisfied that it produces seed and that its seed will grow. Any one doubtful on that head could not do better than try the experiment at once by sowing in a flower-pot, or anything at hand, as the seeds this autumn are, I find, well ripened and numerous, and I think some fine specimens are not rare. The very hot summer has seeded abundantly Sainfoins, Lucerne, &c., besides weeds of all sorts.'

"In response to the above suggestive letter, and in reply to several similar questions recently received, we re-produce some illustrations of experiments which we made nine years ago. These were given in the *Agricultural Gazette* of Aug. 25, 1860. On the 2nd September, 1859, ten recently-gathered seeds of the common field Thistle (*Carduus Arvensis*) were sown. By the 21st, or at the end of nineteen days, all the seeds had not only come up, but advanced to the condition shown in Fig. I. After the first frost, the whole of the plants had apparently died; as spring came on, however, they were making roots and buds. Figures 2*a* and 2*b* show two stages of this progress; the buds *b b* are the growing points of the plant, by which its multiplication by secondary buds, *a a*, is brought about. Figure 3 shows how one of the plants advanced between February 27th and June 28th, the time when our last drawing was made. In this the secondary bud had grown up to a large prickly, but abortive bud, while preparation was made in the tertiary buds—*a, a, a*, in Figure 3—for a complete plantation of Thistles."



The Wheat Crops of East Lothian.

To the Editor of THE CANADA FARMER:

SIR,—In your issue of July 15 there appears an article on "British *versus* American Farming," in which there is an extract from the *Farmer* (Scottish) that says: "The East Lothian farmer, who can enjoy the pleasure and deep satisfaction of viewing the level field of full-eared wheat swaying in the undulated waves beneath a bright sun, giving to the grain a last golden tinge before the reaper enters on its clattering work, can almost to a nicety tell you that he will thrash from that field his fifty or sixty bushels an acre." Now, sir, if such is the case—if some of the East Lothian farmers can look down on such magnificent crops, there must be others of them that have to look down on wheat crops very much less—indeed, not so far ahead of the "careless agricultural sinners," to whom you direct your homily, as you would have us believe.

In 1857, the latest year in which the crop statistics were taken in Scotland, the average wheat crop of East Lothian is given at twenty-six bushels and two and a half pecks per acre. In 1856 it was given at twenty-eight bushels and three pecks per acre; which, taking the average of the two years, gives about twenty-seven and a half bushels as the average wheat crop of that county.

In reading your article one would think that most of the farmers had such magnificent crops. But let us see with the average as above how the matter stands. I believe that there are about twenty thousand acres under wheat in the county in question. Now suppose we allow seven thousand of these acres to yield say fifty-five bushels per acre—equal to three hundred and eighty-five thousand bushels—(while the whole twenty-thousand acres, at the average of twenty-seven and a half, would give five hundred and fifty thousand)—leaving the other thirteen thousand acres to yield one hundred and seventy-five thousand bushels, or about thirteen and a half bushels to the acre, so that is it easily seen how far they are ahead of the "careless agricultural sinners" of Canada.

I never was in East Lothian, but know that it is always looked upon as one of the best farmed counties in Scotland—the one indeed in which improved agriculture took its first rise in that country, and I certainly wish that their crops may never be less; but I suspect the *Farmer* was stretching them a little when he would make us believe their wheat generally yielded fifty or sixty bushels to the acre.

I can hardly agree with your own views at the close of the article, as my opinion is that the East Lothian farmers are far less subject to having their wheat crops *winter-killed* or seriously damaged by *insects*, and these I consider are about the greatest draw-back to the growth of fall wheat that the "careless agricultural sinners" in Canada have to contend with.

W. R.

Cobourg, Sept. 12, 1868.

Farm Weights and Measures.

At the request of a correspondent, we subjoin the rules for measuring various agricultural commodities in the bulk, also for measuring land, and the standard weights of the principal grains, &c. The information thus condensed may have appeared at different times in former numbers of this journal, but, as our correspondent suggests, it will be convenient for many farmers to have it collected in a convenient form for reference. With regard to some of the matters, no infallible rule can be given, and much is necessarily left to the judgment. In such cases as estimating the weight of cattle by measurement, for instance, the results are not always correct, and it is by the practised eye and experienced judgment, rather than by any arithmetical calculation, that the most successful drovers and butchers form their opinions and regulate their operations.

TO MEASURE LAND.

To find the area of a square or oblong piece of land, measure the length and breadth in rods (16½ ft.); multiply the two together, and divide the product by 160, which will give the number of acres in the lot. If the shape of the land be triangular, with one corner square, to use a common expression, proceed as above, and take one-half the product as the area of the triangle. In measuring irregular fields, divide the space into parallelograms and triangles, ascertain the area of each, and the sum of the whole will give the total area.

The following rules also embrace a large number of the cases requiring surface or land measure.

To find the area of a triangle.—Multiply the base by half the altitude, and the product will be the area. By the altitude is meant a line from one angle drawn perpendicular to the opposite side as a base.

To find the area of a parallelogram.—(A four-sided figure with opposite sides parallel.)—Multiply the base by the altitude, and the product will be the area. By the *altitude*, in this instance, is meant the perpendicular distance between any two opposite sides.

To find the area of a trapezoid.—(A four-sided figure with only two sides parallel).—Multiply half the sum of the parallel sides by the altitude, and the product is the area.

To find the area of a Trapezium.—(A four-sided figure which has no two sides parallel.)—Divide the trapezium into two triangles by a diagonal, or line drawn between two opposite angles, then find the areas of these triangles; the sum will be the area of the trapezium.

The following table, clipped from the *New England Farmer*, will be found very convenient for ascertaining the area of small square or oblong plots of land. The larger figures on the margin and diagonal, represent the measurement in feet, as taken on the ground. The area given in smaller figures is expressed in square rods by the upper number, and in acres by the lower number.

There are two tables given below, having no connection with each other, except that the darker figures in the lower are in continuation of those in the upper at corresponding intervals. In the first table the *width* of the piece of land, expressed in feet, must be looked for in the diagonal row of darker figures, the *length* in the horizontal row of darker figures at the top. In the second table the *width* must be looked for in the diagonal row of darker figures, and the *length* in the vertical column of darker figures at the left. The area will be found below the one and opposite the other.

To illustrate the use of the table:—Suppose we wish to know the contents in rods and in acres of a piece of land 140 feet long by eighty feet wide. We look in the upper table for 140 in the top row of dark figures, and find it at the top of the last column but one. Following that column down opposite to 80 in the upper diagonal row of dark figures, and we find it contains 41.14 square rods, or .2571 acres. Suppose we have another piece just twice as long and twice as wide; we look in the lower table for the length, 280 feet, in the vertical column of dark figures, and for the width, 160 feet, in the lower diagonal row, and find them at the head of the second column; then following that column down opposite 280, we find the area to be 164.55 rods, or 1.065 acres.

1st.	10	16.5	20	30	33	40	50	60	70	80	90	100	110	120	130	140	150
10	.3673 .0023	.6061 .0038	.7348 .0046	1.101 .0069	1.212 .0076	1.469 .0092	1.836 .0115	2.204 .0138	2.571 .0161	2.938 .0184	3.306 .0207	3.673 .0230	4.040 .0253	4.408 .0276	4.775 .0299	5.142 .0321	5.509 .0344
	16.5		1.000 .0063	1.212 .0076	1.818 .0114	2.000 .0125	2.360 .0452	3.030 .0189	3.636 .0227	4.242 .0265	4.848 .0303	5.455 .0341	6.060 .0378	6.666 .0416	7.272 .0454	7.878 .0492	8.484 .0530	9.090 .0568
		20		1.469 .0092	2.203 .0138	2.424 .0152	2.938 .0184	3.673 .0230	4.407 .0275	5.142 .0321	5.878 .0367	6.611 .0413	7.346 .0459	8.080 .0505	8.815 .0551	9.550 .0597	10.28 .0643	11.02 .0689
2d.	150		30		3.306 .0207	3.636 .0227	4.047 .0270	5.510 .0344	6.612 .0413	7.713 .0482	8.815 .0551	9.911 .0619	11.02 .0689	12.12 .0758	13.22 .0826	14.33 .0895	15.43 .0964	16.53 .1091
150	82.62 .5165	160		33		4.000 .0250	4.848 .0303	6.061 .0379	7.273 .0455	8.485 .0530	9.697 .0606	10.91 .0682	12.12 .0758	13.33 .0833	14.55 .0909	15.76 .0985	16.97 .1061	18.18 .1136
160	83.16 .5509	94.03 .5876	170		40		5.877 .0367	7.346 .0459	8.815 .0551	10.28 .0643	11.75 .0734	13.22 .0826	14.69 .0918	16.16 .1010	17.63 .1102	19.10 .1194	20.57 .1286	22.04 .1377
170	93.66 .5854	99.91 .6244	106.15 .6634	180		50	9.182 .0574	11.02 .0689	12.85 .0803	14.69 .0918	16.53 .1033	18.37 .1148	20.20 .1263	22.04 .1377	23.88 .1492	25.77 .1606	27.55 .1722
180	99.17 .6198	106.78 .6611	112.30 .7025	119.01 .7438	190		60	13.22 .0826	15.45 .0964	17.63 .1102	19.83 .1240	22.04 .1377	24.34 .1515	26.45 .1653	28.65 .1791	30.85 .1928	33.06 .2066
190	104.68 .6542	111.66 .6979	118.64 .7416	125.61 .7851	132 60 .8287	200		70	18.00 .1125	20.57 .1286	23.14 .1446	25.71 .1607	28.28 .1768	30.98 .1928	33.43 .2089	36.00 .2250	38.57 .2410
200	110.19 .6887	117.54 .7346	124.88 .7805	132.28 .8264	139.57 .8724	146 92 .9182	210		80	23.51 .1469	26.46 .1653	29.38 .1837	32.33 .2020	35.28 .2204	38.20 .2388	41.14 .2571	44.08 .2755
210	115.70 .7231	123.41 .7713	131.12 .8195	138.84 .8678	146.55 .9159	154.26 .9641	161.98 1.012	220		90	29.75 .1860	33.06 .2066	36.36 .2273	39.67 .2479	42.96 .2685	46.26 .2893	49.59 .3099
220	121.21 .7575	129.29 .8081	137.37 .8586	145.46 .9091	153.53 .9595	161.61 1.010	169.69 1.060	177.77 1.111	230		100	36.73 .2296	40.40 .2525	44.08 .2755	47.75 .2984	51.42 .3214	55.10 .3444
280	126.72 .7920	135.17 .8448	143.61 .8976	152.06 .9503	160.51 1.003	168.96 1.055	177.41 1.109	185.85 1.162	194.30 1.214	240		110	44.44 .2777	48.98 .3058	52.53 .3283	56.57 .3535	60.61 .3785
240	132.22 .8255	141.04 .8806	149.86 .9366	158.67 .9917	167.49 1.047	176.30 1.102	185.12 1.157	193.93 1.212	202.75 1.267	211.56 1.322	250		120	52.89 .3306	57.80 .3581	61.71 .3857	66.12 .4132
250	137.64 .8609	146.92 .9182	156.10 .9756	165.20 1.033	174.47 1.090	183.65 1.148	192.83 1.205	202.01 1.263	211.20 1.320	220.38 1.377	229.56 1.434	260		130	62.08 .3880	66.85 .4178	71.63 .4476
260	143.25 .8963	152.80 .9546	162.35 1.015	171.90 1.074	182.02 1.140	190.99 1.194	200.54 1.253	210.00 1.313	219.04 1.373	229.20 1.432	238.74 1.492	248.29 1.551	270		140	71.99 .4499	77.14 .4821
270	148.76 .9297	158.68 .9917	168.59 1.054	178.51 1.116	188.42 1.178	198.34 1.240	208.26 1.302	218.17 1.364	228.09 1.426	238.01 1.488	247.93 1.549	257.84 1.611	267.76 1.673	280		150	82.64 .5165
280	154.27 .9641	164.55 1.028	174.84 1.093	185.12 1.157	195.40 1.221	205.69 1.286	215.97 1.350	226.26 1.414	236.55 1.478	246.83 1.543	257.12 1.607	267.40 1.671	277.68 1.736	287.97 1.800	290		
290	159.78 .9985	170.43 1.065	181.08 1.132	191.73 1.198	202.38 1.265	213.03 1.331	223.69 1.398	234.34 1.463	244.99 1.531	255.65 1.598	266.30 1.664	276.95 1.731	287.60 1.797	298.25 1.864	308.91 1.931	300	
300	165.29 1.033	176.31 1.102	187.32 1.171	198.34 1.240	209.36 1.308	220.39 1.377	231.40 1.446	242.42 1.515	253.44 1.584	264.46 1.653	275.48 1.722	286.50 1.791	297.52 1.859	308.54 1.928	319.56 1.997	330.58 2.066	310
310	170.80 1.067	182.18 1.138	193.50 1.210	204.95 1.281	216.34 1.352	227.73 1.423	239.12 1.494	250.50 1.566	261.89 1.637	273.28 1.708	284.66 1.779	296.05 1.850	307.44 1.921	318.82 1.993	330.21 2.064	341.60 2.135	352.98 2.206

TABLE OF MEASURES OF LAND.

TO MEASURE HAY IN THE STACK OR MOW.

If it be a square or oblong stack, with a pitched roof, measure the height in feet from the base to the eaves, add to this half the height from the eaves to the ridge, to find the mean height; multiply the height by the breadth, and the product by the length. Divide the gross product by 27, and the quotient will be the number of cubic yards in the stack. The estimate of the total weight must depend upon the supposed weight of a cubic yard; this will necessarily vary according to the time allowed for the stack to settle. In an old stack the hay is much more compact than in one recently built. A pretty correct estimate will be gained by allowing 35lbs. to the cubic yard in the new stack, and 100lbs. in one that has stood a few months, and 112lbs. if it has stood more than a year. To ascertain the weight of hay in the stack, multiply the number of cubic yards by the number of pounds allowed, and the product will give the contents of the stack in pounds; divide by 2,000, and the quotient will give the number of tons. To ascertain the weight of hay in a round stack with a conical top, find the height to the eaves, and add one-third of the remainder to obtain the mean height of the whole. Measure the girth; square this dimension (that is, multiply it by itself), and multiply the product by the decimal ·0795. This will give the area of the base. Multiply the area by the mean height, and the product will be the contents of the stack, in cubic feet, divide by twenty-seven and we obtain the number of cubic yards. Multiply this as before, by the number of pounds allowed to the yard, and the product will give the gross weight in pounds. To estimate the contents of a mow where the top surface of the hay is level, the process is the same as with the square stack, or rick, omitting the allowance for the sloping roof.

TO MEASURE GRAIN IN THE BIN.

Multiply the length by the width, and their product by the height in inches; divide by 2,150 (the number of square inches in a bushel), and the product will give the number of bushels in the bin.

TO MEASURE CORN IN THE CRIB.

Measure the length, width, and depth of the crib in feet; multiply these three dimensions together, and the product by 4; cut off the last right hand figure: those to the left express the number of bushels of unshelled corn. If measured in inches multiply the three dimensions together, and divide the product by 4,300; the quotient will be the number of bushels.

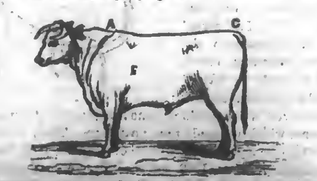
TO MEASURE ROOTS IN THE PIT OR ROOT-HOUSE.

To estimate the quantity of potatoes, turnips, or other roots in a pit, or bin, or root-house, ascertain the cubic dimensions, either in inches or feet, as in the case of small grain or corn, making allowance for the slope of the ridge by measuring only half the height, or so much of it as would be required to level the top and have a solid cubic heap:

Of the amount estimated as for small grain take three-quarters, which will give the quantity of roots; or if measured in feet according to the rule for corn in the crib, add one-half the amount, and the sum will be the quantity of roots. Thus a space that would hold twenty bushels of corn in the ear, would hold thirty bushels of roots, and forty of grain.

TO ESTIMATE THE WEIGHT OF CATTLE BY MEASUREMENT.

In making use of the following rules, the regularity of the shape and the condition of the animal must be taken into account. A deduction must be made if the flank is poor, and something over may be allowed in the case of very fat cattle. The mode prescribed will be more readily understood by the aid of the accompanying figure:



Measure, with a tape line, from the top of the shoulder *a*, to the tail head *c*, and mark this for the length; then measure round the body at *f*, immediately behind the shoulder, and mark this for the girth. Multiply the *square of the girth in inches* by the *length in inches*, and divide the product by 7,344, and the quotient is the weight in imperial stones (eight pounds). Or, square the girth in *feet*, and multiply it by the length in feet; multiply again by the decimal .238, and the sum is the weight in imperial stones.

STANDARD WEIGHTS OF THE BUSHEL.

The following table shows the standard weight of the bushel of grains and other agricultural products:

BUSHELS.	LBS.	BUSHELS.	LBS.
Wheat	60	Potatoes	60
Corn	56	Turnips	60
Rye	56	Carrots	60
Barley	48	Parsnips	60
Oats	34	Beets	60
Peas	60	Onions	60
Beans	60	Dried Apples	22
Buckwheat	48	" Peaches	33
Clover Seed	60	Malt	86
Timothy "	48	Salt	56
Blue Grass Seed	14		
Flax "	56		
Hemp "	44		

Rust in Wheat.

An elaborate report on the occurence of rust in wheat, and other diseases, has been published by a commission appointed for the purpose in Australia. In reference to this document the *Mark Lane Express* has the following notice:—

The enquiry into the nature and causes of the red rust, by the Commission appointed for the purpose by the Governor of South Australia, has elicited a vast fund of information from the collected report of eight hundred 'agriculturists,' and, although the statements are in many respects very contradictory, the committee was enabled from them to obtain general results, which, while they showed the fallacy of the opinions advanced, established the fact that no condition of soil or climate is free from its ravages, nor will any precautions taken by the farmer prevent these. "The rust-spores," says Dr. Muecke, "are located and spread over the whole world; neither oceans nor mountains will stop them. They do not commence to grow and multiply until they meet the circumstances favourable to their existence and nourishment." The following statement is given in the report as the evidence collected by a member of the Legislative Council:

The red rust is caused—	Red rust also prevails—
1. By the exhaustion of the soil.	1. On newly cultivated lands.
2. By late sowing.	2. By early sowing.
3. By manuring.	3. Manure prevented.
4. White straw is the best.	4. Purple straw is the best.

Such are the contrary opinions—doubtless all adopted from observation and experience; but only proving that other influences than those adduced have operated, and will constantly operate, to neutralize general theories on this and many other subjects of natural history; more especially those relating to endemic and epidemic disease. In either the animal or vegetable economy. There is not a doubt that climatic conditions have the greatest share in the production of the red rust. A moist, warm season causes a florid development of vegetation, and opens the breathing pores of the plant, and so gives passages to the spores of the parasites which are continually held suspended in the air. These, entering the openings thus left, throw out their rootlets (*mycelia*), and by intercepting the sap between the stem and ear, impoverish the grain and destroy the crop. Dr. Muecke is of the opinion that the red rust never attacks the wheat plant unless it is otherwise diseased—in fact, that it is *an effect* and not *a cause*, or at least, a second, rather than a first cause, being itself superinduced by the corrupted state of the juices of the plant. "Where the rust destroys," he says, we may safely infer that the plants were in a suffering state before they were attacked. Nature does not allow morbidness to exist. . . . The red rust has not destroyed our crops; it has merely furnished the eruption thereto." But, "on the other hand," he says further, "it is equally true that on vast surfaces the red rust has been the main cause of the destruction of plants in regard to the formation of the grain." A remarkable case in proof of this theory is stated in his letter. Part of a field of wheat in which wild oats had prevented the wheat from growing was cut for hay. Immediately the wheat sprung up healthy and vigorous, and developed full ears and fully grown grains; not a particle of rust was perceptible on these parts of the field, whilst the surrounding thick and high wheat was completely covered with it. The cause assigned is, that the wheat, in the one instance, did not grow till the time was past in which the influences supervened that predisposed the plants; consequently they became strong and healthy. While the red rust spores passed over them they were not infected, because the spores did not find the conditions of their existence—that is, diseased sap and weak cells—upon them. This is clear enough; because, surrounded as these mown spots must have been by the wheat on which the rust prevailed, the former could not have escaped if the same conditions had prevailed in them as in the other.

Salt for Crops.

A Subscriber sends us the following clipping from the *Glasgow Herald*, with a request that we would publish it in this journal:

"I have been reading with very great interest the account of the 'Proceedings of the Chemical Department,' given by Dr. Anderson, in the 'Transactions of the Highland Agricultural Society of Scotland' of February last, and I wish to state what that account has suggested to me. The account is devoted chiefly to field experiments, under the auspices of the Highland Society, in various districts, for determining the comparative effects of different manures in the production of turnips.

1. It appears from the account that in several plots drought delayed or prevented a general braird, so as to make the experiments unsatisfactory, and not sufficient for affording beneficial deductions. Why not endeavour to secure a braird by salting the land, and thus attracting moisture from the atmosphere? My turnips were sown this season when the land was utterly dry. The braird came quickly and without a miss, and the plants continue growing rapidly with rich glistening blades. The land, just before being drilled, was sown over with salt at the rate of good twelve cwt. per imperial acre. Years ago I commenced with four cwt., and the quantity of salt has been increased year after year, till this season it amounted to fully twelve cwt.

2. It appears further that finger-and-toe interfered with results, so as to render comparison all but valueless. Why not have it as a condition that the land should be well dressed with hot lime? I have had no finger-and-toe since I adopted this practice.

The salting of the experimental ground would ensure a braird, and the liming of it would prevent finger-and-toe; and the application of both would affect the experiments favourably, inasmuch as there would then be sound turnips to test the virtues of the several manures. But I believe that a proper quantity of salt is itself a preventive. My turnips are past the stage for finger-and-toe, and although the land has not been limed, they are not affected with the disease.

In the garden the results from "salt" and "no salt" are worthy of notice.

1. No salt. The turnips quite a failure,

2. Salt. The swedes and turnips alike excellent. Part of the turnips got a double quantity, and they are twice as forward as the others, good as these are. I may mention that, in this instance, the salt was not mixed with the soil, but scattered on the surface immediately after the seed was sown. The quantity was at the rate of about four cwt. per acre, except where the swedes are best, which got at the rate of about eight cwt.

3. In this garden hitherto there never was raised anything like a crop of carrots or leeks. The soil and not the treatment of it was blamed. It is a heavy soil. This season, when the ground was, according to the practice of former years, ready to be manured and seeded, I had it salted and dug over. Farmyard manure was then spread over it, salt scattered over the manure, and the whole dug in. Parsnip, carrot, leek, and onion seeds were then sown on several plots, and the result is that each crop is as rich as could be desired, to the astonishment of those who had long known the garden. I should state that one plot of carrot ground was not salted, and the result is that of former years—not the fourth of a crop. This has been interplanted with transplants from the swede ground, and when the transplants stand up coarse salt will be spread between the rows, care being taken not to touch the plants with salt.

I may mention that between the rows of my field cabbages salt was put on at the rate of fully twelve cwt. per imperial acre, and they are doing remarkably well; and that as soon as my potatoes were planted and covered, salt was sown across the drills at the same rate per acre. These are a fine crop, with good stems and dark glossy leaves.

When I think of the severe loss occasioned by the "worming" of oat crops, I am led to remark that my crops never suffer from this destructive plague. Salt, at the rate of four cwt. per acre, is broadcast immediately after the sowing of the oat seed, and harrowed in; or if that has not been done on account of rain, and if "worming" appear, salt is applied without delay to the "worming" parts, and the "worming" at once ceases, but the crop is generally better on these parts than on the rest of the field where salt had not been sown."

A Large Yield.

To the Editor of The Canada Farmer:

Sir,—Thinking it might not be uninteresting to your agricultural readers to know something of the crops their fellow-farmers are raising, I send you the subjoined account of the quantity produced this harvest and last, from a single field situated on Lot 33, 2nd Range, in the township of Pickering.

From this field, containing 11 acres, I raised, this year, 560 bushels 45 lbs of barley,—lacking only 3 lbs. of making an average of 51 bushels per acre, —some 480 bushels of which were sold to Mr. Whiteside, of Frenchman's Bay, at 96½ cents per bushel, the remainder being kept for seed for the ensuing year, and other purposes. But taking the whole quantity at this price, and the entire value of the crop nets $541 30. The quality of the grain may best be estimated from the fact that 46½ lbs. was the average weight of each bushel by measurement.

The same field was under spring wheat last year, and produced 385 bushels, or an average of 35 bushels per acre. The price realized was $1 63 per bushel, and consequently the whole crop was worth $627 55.

We often hear it said that farming in Canada does not pay, and that people in Canada had better not invest their money in real estate, as the return realized from the crops scarcely rewards the husbandman for the labour of tilling and reaping; but $1,168 85 ought surely to be enough to pay well for the cultivation of 11 acres for two years, and still leave a large margin of "clear gain," much larger, in your correspondent's humble opinion, than can be obtained from any other investment equally safe.

WILLIAM COWAN.

Improvement of Worn-out Lands with Grass and Clover.

A correspondent of the *New York Times* writes to that paper as follows:

I will tell my experience on a poor farm in Rhode Island, of 150 acres, and too poor to keep a yoke of oxen, one cow and one horse in good condition. This farm was worth at that time about $4,000 or $5,000. But a new man came along who thought he could raise grass where none grew before. He tried, with perfect success every time; so that in a few years he kept about fifty head of cattle, mostly cows, on the place, and sold annually as many tons of hay.

The *modus operandi* was this:

1. Plough the land.
2. Harrow.
3. Spread 200 bushels ashes per acre.
4. Harrow.
5. Sow millet and clover.
6. Harrow.
7. Roll.
8. Cut half ton of millet to the acre in six weeks from sowing time, enough to pay expenses first year.

He then had a good stand of clover, which was cut twice the two years. The next year he ploughed under the clover, harrowed, applied fifty bushels ashes to the acre, harrowed it in, again sowed millet and clover, harrowed and gave it a good rolling. In six weeks he had a good growth of millet, say two tons per acre, and another good stand of clover. The next year he cut two crops of clover again. The next year he turned under the clover, applied his barn-yard compost of muck and cow manure, which he had been four years preparing, and raised eighty bushels shelled corn per acre, on land that, before he commenced, was called barren, and land that the neighbours said, when he was applying the ashes, was not worth, ashes and all, after it was mixed, what the ashes cost.

Now, there are a great many inquiries about how to raise clover. This man never failed; he never thought of it, and never dreamed of it, and never knew any failure. He had a system in his head (for he did not get it from books) which he carried out like "clock work," and his farm was beautiful to look at. He said the land was not fit for manure, so he took four years to get it ready.

He thought ashes would produce millet and clover, and millet would protect the young clover from the scorching sun until it would need no protection.

The harrowing and rolling were indispensable. He commenced in May, and sowed millet and clover every day as fast as the land was ready, for two or three months, and knew no such word as fail.

Stock Department.

Digestion.

All the functions of the living body are most intimately connected with each other, and the relations they mutually bear must be borne in mind, in order fully to understand any one of them. This reciprocal dependence is clearly manifest in those vital processes that have already been briefly described in former numbers of this journal—in those, namely, of the circulation of the blood, the breathing, and the temperature of the body. Closely related to these is the important function of digestion—which comes next under consideration. This is the prime agent in supplying the waste of the system, resulting from those constant and active changes that are going on in all living bodies during the continuance of life.

By digestion is meant not merely the process that is carried on within the stomach, but all the series of operations by which the crude material taken as food becomes gradually converted into blood,—the fluid that is more immediately concerned in repairing the loss and disintegration of the tissues. We will first give a brief summary of the various stages in this process, and afterwards consider them in detail.

In the first place, then, the food is taken into the mouth, and more or less divided and crushed by mastication. This preliminary operation is more requisite in some cases than in others; accordingly we observe considerable and well-marked diversities in the apparatus employed, corresponding to the nature of the food, and the wants of the animal. Indeed the exact adaptation of the teeth to the peculiarities of various animals is so well defined and constant, as to afford the readiest and most reliable index to their general habits and structure, and has become, therefore, an important basis in all systems of zoology, for the classification of animals. The food, after being subjected to the action of the teeth and of certain secretions in the mouth, passes into the stomach, where it is acted on by a powerful solvent—the gastric juice—and is softened and partially dissolved, so as to be reduced to a pulpy mass, which receives the name of *chyme*. In some vegetable feeders, the food, before being submitted to the action of the gastric juice in the stomach proper, is returned to the mouth and re-masticated—a process familiarly known as chewing the cud. Next, the chyme passes into the intestines, where it is further acted on by various secretions, is more completely dissolved, the indigestible and effete matters separated, and the nutritive and soluble portion at length reduced to a milky fluid, which receives the name of *chyle*. This is taken up from the intestines by certain absorbent tubes, called, from the colour and character of their contents, *lacteal* vessels. The chyle bears a close resemblance to blood, in many particulars, and may be regarded as the last stage in the conversion of crude food into that fluid. The intestinal tube varies greatly in length in different animals, being longer or shorter according as the food more or less approximates to animal tissues. For example, it is shortest of all in those who live on the blood of other animals, and longest in those who feed on grasses and vegetable materials, the nutritive elements of which are least concentrated. It is comparatively short in exclusively carniverous creatures, and of medium length in those whose diet is of a mixed nature, as in man.

The consideration of the first process of mastication, including the structure, growth, and peculiarities of the teeth, a subject of much interest and importance, as it will require the aid of illustrations, and would extend this paper to inconvenient length, must be deferred to the next article in this physiological series.

Sheep Farming in Turkey.

The British consul at Adrianople gives some interesting details of the sheep and goat farming in that vilayet. He gives the number of sheep at 4,512,000, and of goats at 778,000, the tax on which, at the rate of four piastres each, yielded £171,297 in 1867. Nevertheless it is estimated that 20 per cent. profit is obtained by sheep husbandry. The tax produced £10,596 more in the year 1867 than in the previous year, and for the last ten years there appears to have been a steady increase in the number of sheep. The peculiarity of the shepherd's work in this district is the process of milking the sheep and the goats, large quantities of butter and cheese being made from the milk of these animals and sent into Constantinople, whence also the sheep and lambs are sent from the district or vilayet of Adrianople for local consumption. The total cost of a flock consisting of 1,800 ewes, 150 rams and 50 goats, is stated to be 90,500 piastres, the cost of keep, &c., being 31,000 piastres, and the total value of produce, exclusive of the skins, 56,910 piastres—112 piastres being equal to the £1 sterling. There is an active market for the skins of the lambs and goats, which are salted and packed for the French and English market.

The two prominent breeds, which are considered by the natives as distinctly local, are the Kavirjik, which bear some affinity to the demi-Merinos, and the Karabash, which are black-faced, and not unlike the sheep in Macedonia and Thessaly. The wool of the former is most esteemed, being long, soft, and elastic, and twisted in ringlets, which gives the name to the breed.—*London Field.*

Feeding Trough.

We copy from the *American Agriculturist* the following description and the above cut of a convenient feeding trough for hogs and sheep.

Sheep and hogs will put their feet into the troughs if they can. They will even stand and lie in them, and defile them in every possible way. This may be prevented by various means, but we think that no one has suggested a simpler remedy than Mr. Jacob Nixon, of Van Buren Co., Iowa, who sends us a sketch and description of an appliance he has put upon his troughs, which is seen in the accompanying engraving. Neither hog nor sheep can feed from such a trough with both fore feet in at once, and it would be difficult for any but a very young animal to stand or lie in the trough. The improvement consists of a board set up edgewise, lengthwise over the middle of the trough, kept in place by standards at the ends, and a brace, if necessary, in the middle. The trough, *H*, is represented as ten inches high and twenty inches wide; the standards, *I I*, are inch boards, four inches wide, and the board, *J*, over the trough is of inch stuff, eight inches wide. If the trough is more than ten feet long, a brace, *K*, is needed; otherwise not. This contrivance is equally applicable to log (dug out) or plank troughs.

The filthy condition which pig troughs especially are often allowed to attain, must be injurious to the appetite even of a hog, and will affect the health and economical fattening of the animals to a more serious extent than is generally supposed.

To Manage a Rearing Horse.

Whenever you perceive a horse's inclination to rear, separate your reins and prepare for him. The instant he is about to rise, slacken one hand, and bend or twist his head with the other, keeping your hands low. This bending compels him to move a hind leg, and of necessity, brings his fore-feet down. Instantly twist him completely round, two or three times, which will confuse him very much, and completely throw him off his guard. The moment you have finished twisting him round, place his head in the direction you wish to proceed, apply the spurs, and he will not fail to go forwards. If the situation be convenient, press him into a gallop, and apply the whip two or three times severely. The horse will not, perhaps, be quite satisfied with the defeat, but may feel disposed to try again for the mastery. Should this be the case, you have only to repeat the discipline.—*Ex.*

Acclimation in Australia.

By a late number of the *Australasian*, a weekly paper of general information, and which consists of thirty-two pages of closely printed matter, it appears that English sparrows are now thoroughly established near Melbourne, and have assumed all their English habits, breeding rapidly, tearing the thatch of roofs and ricks into holes, and generally making themselves obnoxious; their good deeds in destroying insects to supply the calls of their broods, are not prominently seen; whereas their fruit-robbing, seed-destroying, bud-picking, and general sins of commission, are patent to all. The inhabitants speak of removing protection from them. If they are like English sparrows they can protect themselves.

It having been found by some speculative members of the Acclimation Society that an ostrich in full health and condition would yield feathers to the value of twenty-five pounds annually, the society state that they have fenced in a "paddock" 111 of ten thousand acres, and imported a flock of ostriches which are doing well.

The English hare is now thoroughly established near Melbourne,—they breed often, and produce two and three (oftenest three) at a birth.

Rabbits introduced, and wild, now swarm in many parts of the province. They seem to do wonderfully well.

English Pheasants do not seem to succeed, or at all events they have not done as well as many other birds. Chinese pheasants and the various kinds of partridges are now well established and increasing fast. Sky larks are now plenty around Melbourne, having been introduced.

Black Hamburgh, Chasselas, and all our greenhouse grapes, come to splendid perfection in the open air, and without shelter, in Australia.

Fowls in the Horse Stable.—Fowls should never be permitted to have access to the horse stable, nor the feed room, nor the hay mow. Their roost should be entirely separate from the stable, so that they may not always be ready to slip in whenever a door is opened, and that the vermin which infest poultry may not reach horses and cattle. It is a well known fact that fowls of all kinds frequently drop a very sordid, offensive, clammy, viscous odor, and when allowed to go on the hay mow, or in the feeding room, or anywhere in the barn, they damage more fodder than we are wont to suppose. We would as soon allow fowls to live in the kitchen, and hop on the dinner table while we are eating, and to roost on the bedstead, as to allow them to have free access to the horse stable and barn. Some horses are always afraid of fowls, and when one enters the manger, or rack, the timid horses will immediately surrender their entire right, however hungry they might be, to these lawless marauders.

Veterinary Department.

The Drugging of Farm Horses.

All descriptions of horses are apt to suffer from the ignorance, prejudice, and quackery of their attendants. Farm horses have certainly more healthful surroundings than their town brethren; they are seldom subjected to the fast pace which tells so severely on the lighter description of horses; their feeding and labour are usually tolerably regular; but much of their ill-health results from the mismanagement and the meddling medical treatment of the attendants.

Ploughmen and carters in many parts of Scotland are, unfortunately, following the evil example of their English brethren in giving the animals under their charge frequent doses of various sorts of medicine. It is poured down in season and out of season; whether the horse is well or ailing; without any knowledge either of the state of the animal's health, or of the effects of the nostrum; and without the owner's being at all aware that his horses are thus ignorantly tampered with. It is sad to think of the rubbish which the poor horse is thus compelled to swallow. Amongst the favourite articles exhibited are dragon's blood, black antimony, sulphur—and the blacker it is the more it is thought of—spices and condiments of all kinds, and innumerable unsavoury concoctions of things animate and inanimate, hurtful and harmless. In some parts of England, and especially in the southern and western counties, the horse keepers collect various herbs, and cunningly preserve them by drying, salting, boiling, or other processes. Thus prepared, these medicaments are used either regularly with the notion of improving condition, or at rarer intervals as a means of curing particular disorders. These preparations of herbs are seldom, however, very potent or hurtful. But carters and farm servants also use strong mineral poisons. In many of the provincial towns the chemists retail enormous quantities of these noxious articles. The mineral acids, preparation of antimony, arsenic, and mercury, are commonly used, or, we ought rather to say, abused. The infatuated mortals have such blind faith in the efficacy of their nostrum, that they will purchase it regularly, even with their own hard-earned money. A scrupulous chemist often demurs about supplying dangerous poisons which he well knows are to be given without the master's knowlege to his valuable horses, and given too by ignorant and often unskilful hands; but the man is not to be diverted from his purpose, and usually has little difficulty in finding a less particular or more complaisant physic monger. Indeed, the physic is, we know, occasionally obtained in barter for grain, hay, straw, or roots, or for a cart or two of coals or other commodities surreptitiously drawn for the drug merchant.

A case illustrating the danger of horses being drugged by their attendants recently came under our observation. On a large farm where sixteen horses were worked several were reported "out of sorts." One had died several days before, after about a week's illness, and with symptoms and *post mortem* appearances which pointed to gastric derangement. Three more horses were unable to eat, and were daily losing flesh; they were slightly feverish, and the digestive organs somewhat out of order, but there was no evidence of cold nor of any acute ailment. The food had consisted of clover and grass, with a few split beans. The stabling was commodious and comfortable. No admission could be got that any medicine or anything besides the ordinary food had been given. The cases appeared puzzling. A careful examination discovered that the back teeth were blackened, and in places softened and decayed; the throat was sore; the stomach irritable. It was evident that the horses had recently been having some corrosive substance. On suspicion of giving such noxious matters, the principal carter was at once discharged. His fellow-workmen's tongues were soon unloosed, and it appeared that anxious to get his horses eat and thrive, the fellow had been in the habit of giving them their corn and chaff wetted with spirit of salt or hydrochloric acid. Weeks elapsed, and demulcents, weak alkalies, and other remedies were freely used; but still the horses remained in a low, thriftless state, from which they only very slowly recovered.

Cases such as these are more numerous and frequent than are generally supposed. When a change of horse-keepers occurs, how often do we find a whole lot of horses fall away in condition, and lose all spirit and endurance, no matter what food they receive. In such cases, if the truth can be got at, it will generally be found that the waygoing fellow has for months, and perhaps for years, been giving acids and other drugs, and that under such tonics, condition-medicines, or pick-'em-ups, the horses looked and worked very fairly. The evil of the system only comes out with all its force when the unnatural drugging is stopped. None but professional men should, under any pretence, prescribe poisons or any potent medicines. The handling of edged tools is a dangerous pastime to those unused to such weapons. Untrained practitioners, if they will dabble in physic, should confine themselves to simples and harmless medicaments, which, even if used ignorantly or carelessly, can do little detriment. No sensible horse proprietor should permit any servant, whether he be groom, coachman, ploughman, or carter, to give on his own responsibility any sort of physic to any horse. By such a dictum peremptorily enforced, he will prevent much sickness and loss; he will have no horses dying, as we have repeatedly known them, from balls given surreptitiously sticking in the windpipe, or from injuries of the fauces inflicted by the sharp weapons on which the balls are often administered. He will not have his horses dying from superpurgation, or dangerously reduced by depressing remedies, or shelved for a few days because their attendant has in his wisdom conceived that they will be better of "a little physic." Many and ingenious are the excuses often advanced in favour of this time-honoured practice of giving medicine to horses: the animal is too fat or too poor, he has been on soft or on hard food; he is going to or returning from the country; he is the better of a good dose of medicine in spring, or summer, or in autumn, or, as we also often hear sagely stated, "he wants the London dust got out of him!" With suitable food, properly regulated exercise or labour, roomy stables, and good grooming, horses can be kept in admirable condition and health without much medicine.—*North British Agriculturist.*

Open Synovial Cavities.

The primary cause of these fearful accidents is the pride of mankind; gentility is always striving to impose upon credulity. It loves to be mistaken for something better than it really is. After all, this vice of society is nothing more than the child's game of "Lords and Ladies," played by grown up persons. A horse having a naturally defective neck is obtained; no barbarity is too abhorrent to repress the hope of making people believe the steed, thus deformed, is a creature of extremest value. The animal, if ridden, has the chin pulled in close to the neck; if driven, the free carriage of the body is prevented by the cruel bearing-rein. The horse progresses in agony, while gentility sits smiling at the result of its artifice. The horse cannot see the ground before it, because of the constraint imposed upon the head; it cannot fix attention upon its duty, because of the agony which the cunning of gentility inflicts upon the lips. The pace is always rapid; the action is high, as in the case of blindness; and the animal, generally, comes to earth with violence. The skin upon the knees is divided, and the structures beneath are penetrated. One or more synovial sheaths are opened, while the cavities, formed by the junction of the separate bones, may be lacerated.

Sheath or joint may not be immediately opened by the fall, but either may have their integrity destroyed, through the slough, induced by the contusion consequent upon a broken knee. Moreover, various accidents will occasionally happen—misfortune is of infinite variety. The synovial bursæ, sheaths or cavities of the hind legs, are occasionally punctured by the quadruped kicking violently, while in harness. The capsule, embracing the tendon of the flexor brachii, upon the point of the shoulder, has been opened by the animal drawing a vehicle being run into; or by the horse running away and coming in contact with some obstacle. Any synovial cavity within the body may be penetrated by an unfortunate combination of circumstances; or by the unbridled passion of the groom, who may have a pitch-fork near at hand. So, also, they have been cut into by the arrogance of unskilful operators. However, it matters not how the misfortune may arise, the mode of treatment and the manner of cure is in all such cases exactly the same.

Neither, as regards the primary effect, is it of subsequent importance whether air be admitted into an opened bursa or sac, a synovial sheath, or the interior of a joint. All of these structures are formed into bladders or closed cavities. They all contain a similar secretion, which is a transparent, albuminous fluid, resembling white of egg. They all are of one use, or all serve to facilitate motion. The bursa is the smallest; the synovial sheath is the next in magnitude; and joints may be much the largest. The secondary effects are proportioned to their size; but, in the first instance, much constitutional disturbance will attend the opening of each.

These structures are not formed to endure the presence of atmosphere; air is admitted a short time after each displays inflammation. This creates symptoms of irritability; and air will enter before we see the wound. The secondary effect is, however, most to be dreaded. Bursæ are small bladders, or closed sacs, distributed over the body, and located wherever the natural motions possibly might originate friction. Sheaths always embrace tendons, being essentially closed sacs. The secondary effects of tendonous sheaths are so much more to be dreaded than those attending a punctured bursa, because the last generally lie loose between highly organized parts; whereas, a sheath is partly fixed upon a tendon, and tendon, being lowly organized, is more difficult to cure, when it is diseased. However, joints are much worse than the preceding two; because in these the synovial membrane is partly spread over the cartilage, which lies upon the articular surfaces of bones. Now, cartilage is the most lowly organized substance in the entire body. When disease fixes upon it, the morbid condition is so low, so irritating, and so difficult to eradicate, that science almost despairs of the issue.

The results indicated show that every effort should be made to ward off the secondary effect. Therefore, when an accident of this nature occurs, proceed with the utmost gentleness. Having procured a large sponge and a pail of milk-warm water, saturate the sponge and squeeze it dry, above the injury. Do not touch the sore, but allow the fluid, as it gravitates, to wash off all or any foreign matter. With regard to the wound, dirt seldom enters that. When it does, the suppuration, which must ensue upon the accident, will more effectually remove it than could hogsheads of water, however unfeelingly it might be employed.

The part having been rendered clean, the wound is to be attentively observed. When nothing but blood or serum, or thin discolored fluid can be seen, this argues the more important structures are entire. Should there be among, and yet distinct from those discharges, a transparent glary liquid flowing forth, such is absolute proof some synovial membrane has been severed. The size of the current and the abundance of the secretion are, also, evidences not to be despised. Probabilities may be inferred from these circumstances. If the amount of synovia is small, there is hope that a bursa only has been interfered with; when the amount is large, it demonstrates that either a sheath is punctured, or the joint itself may have been opened. Synovial cavities, between bones, may be larger, and are much more active than the sheaths of tendons; therefore, the magnitude of the current should be observed; although when the integrity of many parts has been destroyed little absolute dependence will be placed upon the comparative quantity of the synovial secretion.

[The conclusion of this article from the *Turf, Field, and Farm*, must be deferred to another issue.]

Ring-Bone.

To the Editor of The Canada Farmer.

Sir,—About two years ago I had a valuable half-blood mare, then nine years old, affected with ring bone on the nigh or left fore foot. I blistered it with the following mixture:—Spanish flies, 1 oz; spirits turpentine, 1 gill; high wines, 1 pint; I applied the same twice a day for ten days, and she was then better until the summer of 1867, when the swelling began and grew very rapidly, and she got very lame. I then applied to a farrier, who cut her in the heel and took out the feeder of the ring-bone, and cut three gashes with an inch chisil and filled the cuts with some white powder; and bound it up for three days, after which I blistered with the following compound for about fifteen days:—Spanish flies, 1 oz.; corrosive-sublimate, ½ oz.; euphorbium, ½ oz.; spirits of turpentine, 1 gill; high wines, 1 pint. The farrier asserted that the ring-bone could not grow again after that treatment. The mare was better from that time until the past month (Sept., 1868), when the affection appeared again, also one on the off or right fore foot. If you know of any means of destroying the ring-bones and saving the mare, let me know, and you will greatly oblige

Ramsay, Oct. 5, 1868. W. W.

Note by Ed. C. F.—We have before had occasion to remark on the uselessness of the practice above referred to as "cutting out the feeder," a practice which is based on entirely erroneous views of the nature of ring-bone, which is altogether a bony deposit, and cannot be affected by the removal of a small portion of cellular tissue. For ring-bone of long standing "firing" is sometimes resorted to with advantage; but in a majority of cases great benefit is derived from the use of an ointment made of biniodide of mercury and lard, in the proportion of one part of the former to six or eight of the latter.

The Dairy.

Philadelphia Butter.

If there is one department of the Dairy in which, more than any other, there is deficiency among Canadian farmers, it is in the process of butter making. So, at least, one must judge from the quality of the article called butter that finds its way into our city markets, and much of which is nothing less than a disgrace to any rural community. It is simply offensive to any but the coarsest taste, and can neither be a wholesome nor palatable article of diet. Since the introduction of the factory system of cheese-making into this country the scarcity of good butter has increased, and the high price which this produce of the dairy now commands, has not in the least degree improved its general quality. We are persuaded that a prime article would bring a very remunerative return to the maker, and that any firm or private individual who could establish a good reputation in this business would realize prices considerably above the ruling market rates. There are places in the States where the quality of butter is especially excellent, and perhaps no part of the country can boast a better name in this respect than the neighborhood of Philadelphia. An interesting account appeared recently in *Colman's Rural World*, of the butter-making process in this beautiful region of Pensylvania. The account is given by a party of farmers who visited the locality to learn by what special means the high character of "Philadelphia Butter" was attained. The cattle on the farm described were of the Jersey breed, and to this circumstance the excellence of the dairy produce was in a measure attributed, but the punctilious cleanliness, the fresh air, the equal and moderate temperature, and the general arrangements of the establishment, no doubt contributed mainly to the successful results. We commend to the attention of Canadians the following description of a Pennsylvania dairy:

"The milking house is a light wooden structure, with so many open doors and windows that it is hardly more than a shed. In winter it is closed up and used as a stable for young stock. In size it is about twenty-two feet by thirty-six, with a row of stanchions on each side, and with mangers in which a little bran is put at each milking time. Each cow has her own place, with her name, age and pedigree over her manger, and she always goes to it as though she could read. Their names have been put up in the order in which they come from the pasture. The 'master' cow entering first, and the less plucky last.

"The milking is done by women, the same one always attending to each cow, and it is done rapidly and quietly, no unnecessary talking and no sky-larking being allowed. We measured 'Niobe's' yield and found it to be eleven quarts (she gave nine the next morning—making twenty for the two milkings), not bad for a butter-making Jersey cow. The others gave less—the smallest not more than eight quarts at two milkings—but the whole herd of eighteen cows could not have given less than two hundred quarts a day, and this of milk that yields over twenty per cent of cream.

"Near by the milking house is the 'spring-house,' the institution of this region, about twenty-four feet long and eighteen feet wide, built of stone set deeply in the hill-side and its floor about four feet below the level of the ground at the down hill-side. The site is that of a plentiful spring, which is allowed to spread over the whole of the enclosed area to a depth of about three inches above the floor of oak laid on sand or gravel. At this height there is an over-flow by which the water passes to a tank in an open shed at the down hill end of the house. On the floor of the spring-house there are platforms or walks to be used in moving about the room, but probably three-quarters of the space is occupied by the slowly-flowing spring water. The walls are about ten feet high, and at the top; on each side, are long, low windows, closed only with wire cloth, which gives a circulation of air at the upper part of the room. The milk is strained into deep pans of small diameter, that are kept well painted on the outside, and are provided with bails by which they are handled. The depth of the milk in the pans is about three inches, and they are set directly upon the oak floor; the water, which maintains a temperature of fifty-eight degrees Fahrenheit, surrounding them to about the height of the milk.

"The cream is taken off after twenty-four hours, and is kept in vessels having a capacity of about twelve gallons. These vessels are not covered, and as the room is scarcely warmer than the water, the cream is kept at about fifty-eight degrees or fifty-nine degrees until it is put in the churn.

CHURNING.

"The next morning we rose at half-past four to see the churning and butter making. The churn is a barrel (bulging only enough to make the hoops drive well) with a journal or bearing in the centre of each head, so that it may be revolved by horse-power. This barrel has stationary short arms attached to the inside of the staves, so arranged as to cause the greatest disturbance of the milk as it passes through them in the churn. At one side is a large opening secured by a cover that is screwed firmly into its place—this is the cover or lid of the churn. Near it is a hole less than an inch in diameter, for testing the state of the churning and for drawing off the buttermilk. This is closed with a wooden plug.

"The churning lasted about an hour, at the end of which time it was necessary to add a little cold milk to cause the milk to gather. This being secured, and the buttermilk drawn off, cold water was twice added, a few turns being given each time to the churn, and when the last water was drawn off it came nearly free of milkiness. A crank was then put on to an arm of the churn, the horse-power thrown out of gear, and a gentle rocking motion caused the butter to be collected at the lower side, directly over the small hole, through which the remaining water escaped. It was left in this condition about two hours. After breakfast we returned to see the working of the butter.

BUTTER-WORKER.

"In one corner of the spring-house stands the butter-worker, a revolving table about three feet in diameter. The centre of this, for a diameter of twelve inches, is an iron wheel with a row of cogs on the upper side of its rim. From its rim to the raised outer edge the table (made of wood) slopes downward, so that as the buttermilk is worked out it passes into a shallow groove and is carried away through a pipe which discharges into a pail standing below. Over the sloping part of the table there works a corrugated wooden roller, revolving on a shaft that is supported over the centre of the table, and has a small cog-wheel that works in the cogged rim of the centre wheel, and causes the table to revolve under the roller, as this is turned by a crank at its outer end. Of course the roller is larger at one end than at the other, so as to conform to the slope of the table, and its corrugations are very deep, not less than two inches at the larger end. Supported at each end of the roller and on both sides are beveled blocks, which, as the table revolves, force the butter from each end toward the centre of the slope. About twenty pounds of butter is now put on the table, and the roller is turned, each corrugation carrying through a long narrow roll, which is immediately followed by another and another, until the whole table is covered. The roller does not quite touch the table, and there is thus no crushing of the particles. The beveled blocks slightly bend these rolls and crowd them toward the centre of the sloping part, so that when they reach the roller again they are broken in fresh places, and by a few revolutions are thoroughly worked in every part.

FINAL PROCESSES.

"Then follows a process that was new to all of us—the 'wiping' of the butter. The dairy maid (in this instance a lusty young man) turning the roller backward, with the left hand, so that the butter comes through all the right hand side, presses upon every part of it a cloth which has been wrung dry in cold spring water, and which he frequently washes and wrings out. This is continued until not a particle of water is to be seen in the butter as it comes from the roller, to which it begins now to adhere. If there is any secret in the making of Philadelphia butter, this is it; and it has much to do with its uniform waxiness of texture, whether hard or soft.

"After this, the butter is salted (an ounce of salt to three pounds of butter)—still by this machine, and any lurking atom of moisture is in this way prevented from becoming a cause of rancidity.

"When the salt is thoroughly worked through the whole mass, the butter is removed to a large table, where it is weighed out and put up into pound prints.

"The working, wiping and salting of over one hundred pounds of butter occupied about an hour, and before ten a.m., the entire churning, beautifully printed, as fragrant as the newest hay, and as yellow as pure gold, such butter as only Jersey cream will make, was deposited in large tin trays and set in the water to harden. The next morning it was wrapped in damp cloths, each pound by itself, put in a tin case, each layer having its own shelf, with two compartments of pounded ice to keep it cool, and surrounded by a well-coopered and securely-locked cedar tub, was sent to the Continental Hotel, where we found it on our return as delicious as when it left the farm."

Soiling Milch Cows.

A correspondent of the *Farmer* (Scottish), in an article on several subjects, thus incidentally alludes to his experience in soiling milch cows:—

"For thirteen or fourteen years I have had a dairy of about ten cows. I was confident that they could be kept with more economy, and in a better condition in the house, than by the common way of turning out to grass. I had a capital byre, built seventy years ago, and I think on a better plan than any new ones that I have seen. It could hold nineteen cows, but I only put in ten. It is lofty, though the hay loft is over, but I keep no hay there. The cows are all tied up by the neck; the chains being long enough for them to lick themselves, and there are no divisions, so that they can all lie down at their ease. I use no litter, but a little sawdust, and I find I can keep them far cleaner than with straw.

"I began, according to the custom of the country, to turn them out for an hour to get a drink and lick themselves. I found that they knew, as well as the byremen, the hour they were to get out, so they were fidgety and restless for half an hour before the time. They had not been out a quarter of an hour when they stood at the gate wanting to get in again, so I said, as they did not know their own minds, they should not get out again, and they never have since.

"I have four cows that I reared as calves that have never had their foot in a grass park—indeed, have never been out of the byre except to go about a mile to the bull. I have fed a great many rat—and the best beef I ever tasted—some *entirely* on grass *cut from a water meadow*, and some got cake; but I have not made up my mind which is cheapest; those that got cake *may be* somewhat fatter, but as to quality there is no difference."

Poultry Yard.

Standard of Excellence in Exhibition Poultry.

TURKEYS.

Head and Face—Very bright and rich in colour.
Eyes—Bright and clear.
Body—Long and deep.
Wings—Powerful and well carried.
Breast—Broad, very long, and perfectly straight.
Thighs—Muscular, straight and strong.
Legs—Very strong, and perfectly straight.
Plumage—Sound, hard, and glossy.
Colour—Rich, the birds matching in the pen.

POINTS.

Size	6
Symmetry	4
Richness of colour, and matching in the pen	3
Condition	2
	15

DISQUALIFICATIONS.

Crooked breasts, backs, or legs, or deformity in any part.

DUCKS.

AYLESBURY.

GENERAL SHAPE AND COLOUR.

Bill—Long and broad; when viewed sideways, nearly straight from the top of the head to the tip of the bill; of a delicate pale flesh colour, perfectly free from black or dark marks.
Head—Long and fine.
Neck—Long, slender, and gracefully carved.
Body—Long and deep.
Back—Long and broad.
Wings—Strong, carried well up and not drooping.
Tail—Feathers stiff and hard, with hard curled feathers in the drake.
Thighs—Short.
Legs—Short and strong; bright light orange colour.
Plumage—Pure white throughout.

POINTS IN AYLESBURY DUCKS.

Purity of colour and shape of bill	3
Size	4
Symmetry	3
Purity of colour in plumage	3
Condition	2
	15

DISQUALIFICATIONS.

Birds so fat as to be down behind, bills deep yellow, or marked with black, plumage of any colour except white.

ROUEN DUCKS.

GENERAL SHAPE AND COLOUR—THE DRAKE.

Bill—Long, broad, and rather wider at the tip than at the base; when viewed sideways, nearly straight from the crown of the head to the tip of the bill; the longer the better. Colour, greenish yellow, without any other colour except the black bean at the tip.
Head—Long and fine; rich lustrous green.
Eye—Dark hazel.
Neck—Long, slender, and neatly curved; colour, the same lustrous green as the head, with a distinct white ring on the lower part not quite meeting at the back.
Breast—Broad and deep; the front part very rich purplish brown, or claret colour; free from grey feathers, the claret colour extending as far as possible towards the legs.
Back—Long; higher part ashy grey mixed with green, becoming a rich lustrous green on the lower part and rump.
Shoulder Coverts—Grey, finely streaked with waving brown lines.
Wings—Greyish brown, mixed with green, with a broad ribbon mark of rich purple, with metallic reflections of blue and green, and edged with white; the two colours quite distinct.
" *Flight Feathers*—Dark, dusky brown, quite free from white.
Under part of Body and Sides—Beautiful grey, becoming lighter grey near the vent, and ending in solid black under the tail.
Tail—Feathers hard and stiff; dark ashy brown, the outer web in old birds edged with white.
Tail Coverts—Curled feathers hard and well curled; black, with very rich purple reflections.
Legs and Feet—Orange with a tinge of brown.

THE DUCK.

Bill—Broad, long and somewhat flat; brownish orange, with a dark blotch on the upper part.
Head—Long and fine; deep brown, with two light pale brown stripes on each side from the bill past the eye.
Neck—Long, slender, and neatly curved; light brown, pencilled with darker brown, and quite free from the least appearance of a white ring.
Breast, under part of Body and Sides—Greyish brown, each feather marked distinctly with a rich dark brown pencilling.
Back—Long; light brown, richly marked with green.
Wings—Greyish brown, mixed with green, with a broad riband mark of rich purple, edged with white, the two colours distinct.
" *Flight Feathers*—Brown, perfectly free from white.
Tail Coverts—Brown, beautifully pencilled with broad distinct pencilling of dark greenish brown.
Tail—Light brown, with distinct broad wavy pencilling of dark greenish brown.
Legs—Orange; or brown and orange.

POINTS IN ROUEN DUCKS.

Shape and colour of bill	3
Size	4
Colour of plumage	3
Symmetry	3
Condition	2
	15

DISQUALIFICATIONS.

Bills clear yellow, dark green, blue or lead colour; any white in the flight feathers of either sex; birds so fat as to be down behind.

GEESE.

TOULOUSE.

Carriage—Tall and erect; bodies nearly touching the ground.
Colour—Breast and body, light grey; back, dark grey; neck darker grey than back; wings and belly, shading off to white, though but little white visible.
Bill—Pale flesh coulour.
Legs and Feet—Deep orange, inclined to red.

EMBDEN.

Plumage—Uniformly pure white.
Bill—Flesh color.
Legs and Feet—Orange.

POINTS IN GEESE.

Size and weight	6
Symmetry	4
Colour	3
Condition	2
	15

WILD TURKEY—CANADA WEST. *

Head and Face—Clean and game-like, with less excrescence than in the tame bird,—Neck, where bare of feathers, of a darker blue.
Eyes—Dark, very bright, full of intelligence.
Body—Broad shouldered and deep-chested.
Breast—Deep; hair tuft long.
Wings—Bow of same colour as body, with broad bar of bronze feathers across. Secondaries, light brown grey, pencilled with white—the upper four or five feathers that meet over the back being darker, less pencilled, and shot with emerald green. Primaries black, pencilled with white.
Thighs—Dark greyish brown.
Legs—Long—bright red.
Tail—Long, rich deep brown pencilled with black; carried rather horizontally; no tendency to white or whity-brown admissible; bar at end black.
Plumage—Hard and close.
Carriage—Very elegant, majestic, and game-like.

* The Points of the Wild Turkey given above have been furnished by Col. Hassard.

Colour—General hints purple and rich deep brown, and shot with various shades of gold, violet, vermilion and green, very lustrous in sunshine. White in any part of body except pencilling of wings inadmissible.

POINTS.

Colour of Legs	4
Plumage	5
Size	4
Condition	2
	15

DISQUALIFICATIONS.

Deformity in any part. Legs any colour but red. White at end of tail feathers, or anywhere except in wings. A very light whity-brown at end of tail must be regarded with great suspicion.

HEN.

Similar in plumage to Gobblers; less brilliant, and smaller in size.

The Wild Turkey.

To the Editor of The Canada Farmer:

Sir,—Presuming that you would shortly conclude your extracts from the "Standard of Excellence," and that among the few remaining varieties of poultry the Turkey would shortly be noticed, I have endeavoured, in imitation of that valuable publication, to give the description and points of the wild bird, and send them to you, that you might append them to the corresponding account of the domesticated breed. I am afraid I have but imperfectly described the bird, but I may say that, having submitted the description to several parties who are perfectly acquainted with the bird, they all agree in its general correctness. I may further state, that I took the description from a splendid living specimen, now in my possession, which is exactly similar to those sent by me to Mr. Fowler, of Aylesbury, last December, and from which I am glad to hear he has most successfully raised a large brood. This specimen has been inspected by sportsmen and others, all of whom pronounce the bird to be the correct thing. I have also compared the points set down by me with dead specimens, seen plentifully in our markets in the winter, and also with stuffed and live specimens from the States. I therefore think that, until some abler pen portrays the bird, the description may be accepted as correct.

I have been thus particular in giving my authority, as I have reason to suppose that at the last Provincial Exhibition, at which I had the honour of being one of the judges in the Poultry Department, some dissatisfaction was manifested at the awards in this class (Wild Turkey). Some of the exhibitors assured me that their birds had to be trapped to enable them to show them. I do not donbt this for one moment, but it does not prove that these were not a cross between the domesticated and wild species, as their plumage evidently pointed them out to be. A considerable number of the Turkeys in Canada have a cross of the wild bird, and it is perfectly possible to shoot, in the localities where the wild birds are found, birds with the "bar sinister"—white, or whity-brown, at the end of the tail. The farmers allow their birds to roam in the woods, and crosses thus occur. Indeed, no later than yesterday, a distinguished fancier and exhibitor informed me that two splendid wild hen Turkeys had come into his yard a short time since, and joined their domesticated congeners, but on his trying to catch them they had immediately taken wing. Under these circumstances, I think it more essentially necessary that the true birds should be properly described, so that no mistake can occur in the award of premiums for the different classes.

I may perhaps add further, that I have seen practical proof in two instances of the cross of the so-called wild birds, bred from birds trapped, and bought from Indians, and about which I was assured there could be no possible mistake, and that they were the genuine wild Turkey. In both cases alluded to, white birds were hatched among others from the eggs of these birds—pretty conclusive evidence that mistakes do occur. There were no white birds near these birds in the breeding season; they have the white-ended tail and other feathers, but were splendid in plumage; and from the respectability of the parties no deception could have been intended; they firmly believed they had the correct thing. I have seen, continually, similar birds exhibited in the Wild Turkey classes at every exhibition which I have attended in Canada. It does not therefore follow, that because your pigs take a six months' roam in the woods they become wild boars—nor your tame turkeys wild, although in one sense wild enough, and difficult to catch.

F. C. HASSARD.

Toronto, Oct. 1, 1868.

The Apiary.

Will Bees Build Straight Combs in a Frame Hive?

This question is often asked by bee-keepers who have never used a frame hive. We would answer, they will build both straight and crooked combs; but as it is very desirable that they should always build straight, it is well to understand how we may secure such. First, it is absolutely necessary that we use a properly constructed hive—a hive in which especially the frames are properly adjusted. If the lower edges of the top-pieces of the frames upon which the bees are to build their combs are not at proper distances from each other, it will be almost impossible to get them to build straight. But when the frames are properly adjusted there is not much difficulty. A little attention will secure combs straight enough for all practical purposes. If a hive be examined four or five days after a swarm is put into it, any inclination to build crooked may then be remedied by simply pushing them back to their places with the hand. The combs are soft, and will not easily break. If very much inclined to be crooked, they may require another examination. Or if bee-keepers would take the trouble to rub a piece of bees-wax over the edges of the comb frames before the bees are put in, they would have but little trouble with crooked combs.

Securing Combs in Movable Frames.

It has long been a fixed rule with us that the less bees are meddled with the better. Hence whatever we do to them we would wish to do quickly, and in no case is this more urgent than in the transferring of comb and bees from the old-fashioned hive to the Langstroth hive. One of the operations that has always taken us some time is the securing of the comb in the frames until the bees have had time to fasten them. At first we used twine. Then it occured to us that annealed wire, which required no tying of knots with gloved hands, would be better, and we, in common with others, have used it freely. Having occasion the other day to transfer a stock from the old box hive to one with movable frames, we prepared a few little articles which we found to be of great convenience.

Out of well annealed iron wire (No. 12) we made a dozen oblong loops or links, 1½ inches wide, and long enough to go over the outside of the frames and leave half an inch to spare. As soon as a sheet of comb had been cut to fit a frame, it was slipped into its place, and then the loop was slipped on and made tight, by giving it a slightly diagonal direction across the frame. In one or two cases we fixed it more securely by means of a small wedge. The construction and operation of these loops are so simple that no further explanation can be necessary. With one on each frame we found that the comb was secured from all danger of falling out. Two or more might be used, however, in special cases. We applied ours horizontally—that is, *lengthwise* of the frame—but we have since made some of such a length that they fit over the frame *vertically*, and are secured at the bottom by means of a small wedge. On trying these with some loose comb and frames that we happened to have by us, we think that in some cases—especially where the comb is thick and irregular—the vertical loops fastened with a wedge are the best. Both forms can easily be removed, as the sides can be readily sprung apart so as to clear the comb, and even with gloves on it is but the work of a moment to apply or to remove them.—*Cor. Co. Gent.*

Correspondence.

Social Disadvantages of Farm Life.

To the Editor of The Canada Farmer:

Sir,—So much has been written and said about the beauties and pleasures of rural life, that some people hardly believe that it has any disadvantages: but like everything else, agriculture has two sides, a dark and a bright one; and although the advantages preponderate, still there are disadvantages which should not be overlooked. Farmers often reside a considerable distance from the school-house, and the children are frequently kept at home by distance, muddy roads or snow-drifts; thus in their early years losing the time when their parents can the better spare them from the farm-work. If a farmer wishes to give his children a liberal education he has to send them away from home—where they will be beyond the reach of home influences—to the village grammar school, or town academy. But the obstacles in the way of an early education might be overcome to some extent by the parents or older brothers and sisters taking an interest in teaching the children, when prevented from attending school. And although farmers' children may be older than those of mechanics and dwellers in cities before they get their education, yet when sent to higher schools, they generally make better proficiency during their attendance. Much also may be done in after life by self-education during the long winter evenings. But after all that can be said, the education, or rather want of education of farmers' children is to be lamented, and is one of the disadvantages attending their calling.

Farmers are also often distant from the church and sabbath school. For although people in the country may not have those peculiar temptations to vice and wickedness incident to towns and cities, yet they cannot live as they ought without worshipping the Almighty in His sanctuary, or having the sabbath school as a nursery for the church. But if farmers during inclement weather are deprived of these means they are not deprived of the sabbath, and should have proper books and papers for reading for themselves and household.

The distance which most farmers necessarily live apart gives each family a degree of seclusion, not only from each other, but from mankind generally. This often gives rise to a dread of going into society. The young folks feel very awkward and bashful when they appear before "company," and indeed often are awkward; they cannot carry on an intelligent conversation for any length of time with any degree of ease, even supposing they have a tolerable English education; their manners are neither polished nor easy; they may be guileless and affectionate, but from want of politeness they may appear very rude to the more polished part of society. If a person has ever been at an evening party in the country he will see that the time is occupied in frivolous plays, while no time is allowed for profitable conversation. Suppose some "city" cousins drive out with a few friends to visit some of their friends or relations, whenever they get in sight of the farmer's residence there is a general scamper among the children, the elder ones trying to get good places for viewing the visitors without any danger of being seen; the garret and dog-kennel have to be general hiding places for the time being; there is confusion in the house, the mother looks at her dress, then in the glass, then at the parlour, to see if everything is in order; the father looks up at the sky so as to have a few words ready about the weather. The visitors arrive, are received rather nervously by the mother, and are hurried off to the cold "north room" without much ceremony; the children come back one by one, when there is a general "cleaning up" from head to foot so as to be ready when the meal time comes; the mother buries herself cooking and baking for tea, leaving the company to entertain themselves as best they can; and it is not until after tea that there is a feeling of sociability, when it will be soon time for the company to return home. The above picture has many a counterpart in the families of the farmers through the country, and is often repeated. The children have to be well into their *teens* before they are able to keep their ground when their "city cousins" come. But there are families where the reverse is the case; the mother can receive company with ease and grace; the father can talk fluently on religion, politics, the topics more immediately and directly relating to our country, and probably also on different scientific subjects, evincing altogether no mean acquaintance with the literature of the day; and the children are intelligent and refined. Ignorance and boorishness are no necessary concomitants of farm life.

Again, there is often not that air of neatness about the dress of the farmer's family, or the furniture of the house, or the plan of their flower gardens that we find in or near cities. Farmers and their families have to work very hard, although not so hard as their forefathers have done. They are also said to be given to grumbling,—are never satisfied—the crops are either too light or too heavy—the weather too hot or too cold—the land too wet or too dry—the prices too low—he has bad fortune with his stock—or indeed anything is a fit subject for grumbling. Now there may be some truth in this accusation, and this discontented spirit should be avoided by the farmer. The foregoing are some of the disadvantages of the farmer's lot, and others might be mentioned—enough to convince those people of their error who believe there are no toils, nor hardships, nor inconveniences attending rural life.

All that has been said of the pleasures of farm life is true; and how inconsistent is the empty praise of those poets and sentimentalists who write so much about the beauties of farm life, and yet do not engage in it themselves, nor educate their children for agriculturists. What can we get in this world, or what pursuit can we follow that has no disadvantages? There are few callings, on the whole, more healthful, pleasant and noble than that of the farmer. As for the writer—

> "A farmer's life is the life for me,
> I own I love it dearly."

CULTIVATEUR.

York, Sept. 1st, 1868.

The Canada Farmer.

TORONTO, CANADA, OCTOBER 15, 1868.

The Western Fair.

The above fair, held under the auspices of the East Middlesex and City of London Associations, came off on the 29th and 30th ult., at London, and must be pronounced a decided success, although the weather, especially on the second day, was far from favourable. Owing to the Crystal Palace being occupied by the military, the Drill Shed was used for such articles as required to be placed inside a building, while the live stock was shown on the ground adjacent to the Palace. Of course a local fair must not be judged by the standard of a Provincial exhibition; yet it must be confessed that in some departments the London show was no way inferior to its great predecessor at Hamilton, while as a whole it was every way creditable to its projectors and promoters. In horticultural products, with the single exception of grapes; in ladies' work, in carriages, and in poultry, the display was fully equal to that to which the entire Province contributed. The attendance of visitors was large, and financially, as well as otherwise, the exhibition was a success.

In briefly mentioning the leading features of the show, it may be well to begin with

THE LIVE STOCK.

The horse classes were well filled, especially the heavy draught, general purpose, carriage and blood horses. Two heavy draught stallions are particularly worthy of mention: "Farmer's Glory," owned by A. McTavish, of Lobo, and the imported horse "Phenomenon," owned by A. Laurie, of London. Robt. Murray, of Westminster, Wm. Saddler, of Dorchester, J. W. Lurg, and T. McLean, of Lobo, showed some fine-looking horses and mares for general purposes. In carriage and buggy horses the competition was keen, there being over sixty entries. Beautiful blood horses were shown by Messrs. Monger, of Lobo, and McArthur, of Westminster. Some very nice farm teams were on the ground. Of cattle there were fine specimens in the Durham, Devon, and Galloway classes. Messrs. Peters and Pincombe were the chief exhibitors of Devons, but it would require a much longer list to enumerate the Durham exhibitors. At all our fairs, whether provincial or local, this choice breed of cattle takes the lead. Mr. George Robson got the largest share of the honours in this department. Some fine Durham and Devon Grades were shown, and gave proof of the improvement that may be effected in our native cattle by the infusion of a little better blood into them. A few yokes of working oxen were shown, Mr. Geo. Robson having the best pair. Some good specimens of fat cattle were also exhibited by Messrs. Simmons, Pincombe, and Walker. A large number of sheep were on the ground, the Leicesters greatly predominating, and comprising some as fine samples of the breed as can be found anywhere in Canada. We cannot say as much for the Cotswolds, though some fair animals were exhibited. The Southdowns were rather inferior in quality and limited in quantity. The porcine tribe was not largely represented, and consisted almost wholly of large and small Berkshires and Suffolks. Some of them were extremely well-bred, and showed that the farmers of the West understand the difference between land-pikes and hogs properly so called. London is noted for its first-class poultry, and in this department there was a truly magnificent display. Messrs. Peters, Boyne, and Routledge, were the chief exhibitors. For some reason or other, Mr. Lamb did not show any of his choice collection of fowls. A few pairs of pigeons were on the ground.

IMPLEMENTS.

The show of these was hardly so extensive as we expected to see, though it was considerably larger than any other local fair we have attended. Specimens of Ball's Ohio Combined Reaper and Mower, were shown by J. Elliott, of the Phœnix Foundry, London, and F. W. Glen, of the "Joseph Hall Works," Oshawa, those from the latter establishment having a raking attachment. The "Ayr Combined" was shown by Mr. J. Watson. Grain drills and cultivators of superior workmanship were shown by various parties. Among the cultivators was "Anderson's Patent Vibrating Cultivator," exhibited by Stewart, Bruce & Co. "Anderson's Combined Pea Harvester and Hay Rake" attracted much attention. This implement was not long since subjected to thorough trial on a farm in London Township. It will pull from eight to ten acres of peas per day, and is also a most effective hay rake. Its cheapness is no small recommendation to it. The price is only $20. Seed drills of different sizes were exhibited by Messrs. Wm. and Jas. Walker, of Westminster. Mr. George Murray, of Westminster, had a hand grass sower, and a one-horse combined grain and grass seed sower, which, though not highly finished, seems to do its work well. Messrs. Maxwell & Whitelaw, of Paris, exhibited a seed drill for sowing all kinds of seed; also, a powerful cider mill. Hon. E. Leonard had one of his noted wood-sawing machines, which is, we believe, second to none for efficiency and economy of power. Some beautifully made ploughs were on the ground, the chief competitors being Geo. Grey, of London, and J. McSherry, of Iona. Two ploughs, one wooden and the other of iron, made by R. Hornsley & Sons, of England, were exhibited. A ditching machine was shown by Robt. Robson, a horse hay fork by Eliot Grievo, harrows by Jacob Metzer, pumps by Nelson Reynolds and J. M. Cousins, lumber waggons by Plummer & Pacey, and Hull and Kennedy, a farm cart by

Robt. Murray, and straw cutters by J. M. Cousins. Cradles, rakes, scythe snaiths and tool handles, were shown by T. Bryan, an exhibitor who got no less than seven premiums at the Provincial Fair for these articles.

FIELD AND GARDEN PRODUCTS.

The show of grain was exceedingly good, including fine samples of wheat—fall, spring, and midge-proof; together with barley, peas, oats, and Indian corn, that looked as if the season had been anything but the unfavourable one it has. Good samples of clover, timothy, and flax seed were shown. A splendid display of turnips, carrots, mangolds and potatoes, was on the ground. The vegetables were much better than could have been expected after such a dry, hot summer as we have had. Two fine sheaves of flax were shown with the seed on. Several bales of hops, of excellent colour, were exhibited. Very fine cabbages were shown by several parties; tomatoes, of all sorts and sizes, were conspicuous among the garden products; particularly good cauliflowers made the mouth water; and specimens of the egg plant, looked like shiny bladders of purple snuff. A superior collection of fruit was exhibited, consisting mainly of apples, pears, peaches, plums and grapes. The array of flowers was varied and attractive, and a very fine collection of green-house plants attracted much attention. Foliage plants of rare beauty were especially conspicuous in this department. Some very tasteful floral designs were to be seen, one of which, representing a huge cornucopia, was particularly pretty. It is pleasing to see evidences of a love of the beautiful in nature, going hand in hand with regard to the necessary and useful.

MISCELLANEOUS.

Under this head we must dispose very summarily of a great variety of things on which it would be easy to dilate, and that are well worthy of especial mention. As already intimated, there was a fine show of carriages, among them a splendid cab, made by Mr. J. Campbell of London. Beside him, Abbot Brothers, Thompson & Moran, Smith & Gordon, McKeller & Stewart, Pavey & Sons, Messrs. Shetwell, & Hodgins, showed vehicles of various kinds and of superior workmanship. The fine arts, fancy work, and home manufactures, were well-filled departments, but we cannot attempt details respecting them. Beautiful specimens of hand, weaving in carpets, coverlets and shawls, were shown by Mr. Wm. Patrick, of London Township, and attracted much notice. A very fine collection of marble work was exhibited by Messrs. Teale & Wilkins; also, some very nice modellings, and a piece of sculpture representing a figure of "Grief," which was much admired. A beautiful assortment of furniture was shown by Mr. Moorhead, and a large assortment of stoves by the Messrs. McClary and M. Anderson. Washing machines and wringers, hubs, spokes, and bent stuff for carriages, were quite conspicuous articles. A patent horse-shoe, contrived to prevent balling with snow in the winter time, was shown by Mr. Cooper, of Strathroy, and a lever spring wheel by Mr. McLaren, of the same place. A superb collection of furs drew many observing and admiring eyes. Musical instruments; sewing machines; silver ware; crockery; fire-arms; plain and fancy bread and biscuit; cheese, both dairy and factory; leather goods; specimens of book-binding; samples of vinegar, currant wine, and perfumery; articles of brass foundry; collections of brushes; dressed skins; gloves and mitts; sugar-cured hams and bacon; starch from the Ontario starch works; selected grocery goods; live bees, hives, and honey, made up a miscellany deserving of close attention, and presenting many features of special interest.

The London people deserve much praise for the spirited manner in which they have sustained this fair, as do the farmers of the surrounding country for the efforts they have made to present a display of stock and farm products worthy the great fame of the Western peninsula. Though we have no idea that this Exhibition was got up in any improper spirit of rivalry, yet there seems to be an idea entertained by the people of London and the surrounding country, that they are not appreciated by the rest of the Dominion as they deserve to be, and certainly such demonstrations as the one we have been chronicling will do much to impress outsiders with the great resources and high pitch of agricultural improvement characteristic of this part of the province. We regretted to find a notion prevalent in some minds that the Canada Farmer is unduly jealous of the reputation of Toronto and the adjacent region, and disposed to slight the claims of the young sister city at the west, and its neighbourhood. We can most honestly declare that there is no such feeling entertained by us, but that, on the contrary, we are always glad to record whatever is of interest to the farming community, wherever it may transpire, so far as we have information and can spare space. As one evidence of this, we attended, at considerable inconvenience, the recent Western Fair, and have with great cheerfulness bestowed the meed of commendation on those concerned in its origination and management. We beg our London friends to drop all suspicion of local jealousy, and to believe that we are always ready to co-operate with them for the good of our whole country, and any part thereof.

New York State Fair.

The twenty-eighth annual fair of the New York State Agricultural Society, was held this year at Rochester, from Sept. 29th to Oct. 2nd. In no other city of the State are these exhibitions so successful as at Rochester. It is central, has convenient, spacious, pleasant grounds, and is, withal, easy of access. We journeyed to this favourite point with "great expectations," and they were not disappointed, for the show was all that could be desired. When the New-Yorkers get up a State exhibition, they mean business, and lay aside all thought of horse-racing, side shows and pleasure-taking. Their energies are honestly bent to the work in hand; hence it is not surprising that from year to year there is visible progress, while they far outshine their sister States, who have no faith in agricultural shows for agriculture's sake, but must bait their traps with tit-bits of jockeyism and gambling. Judging by the crowds who attend on these occasions, the people of New York State appreciate an agricultural exhibition, and do not require extra excitements of a foreign nature to allure their presence and patronage. Even the horses do not seem to require the impetus of a race to urge their attendance. The equine display at Rochester was quite as varied and meritorious as that brought together at New Haven a short time previously, where the race-course vied with the showring. Indeed at any American fair, whether State or County, you may count on a fine array of horses. The American citizen who is not fond of a fine horse may be set down as a *rara avis*. One of the earliest and strongest aspirations of boyhood, in the United States, is to be able to handle the ribbons; and "Young America" is in his glory with a fast horse in the thills, a cigar in his mouth, and beauty beside him on the other half of the buggy cushion.

The heavy draught and general-purpose classes were better filled on this occasion than we ever remember to have seen them at an American fair. In our view, it is one fault of the agriculture of the United States that the plough teams are too light. It is difficult to breed horses that are adapted both to the furrow and the road, because a dead pull is wanted in the one place, and at least a fair degree of speed in the other. In carriage horses the turn-out was, as usual on such occasions, very fine, and if the judges were not puzzled where to award the honours, the spectators were embarrassed where to bestow their highest commendation and preference. The entire "get up" of the "rigs," as Americans call horses, harness and vehicles, is such as to impress a stranger with the great attention bestowed on equipages across the lines. There is a style about these turn-outs which evinces the prevailing taste of the people.

For obvious reasons, the cattle and implement departments attracted our chief attention; we shall therefore devote the greater part of the space we have at command to some notice of them.

The show of cattle of all breeds was in excess of any former exhibition that we have attended in the State of New York. Short Horns as a class were very good indeed. C. K. Ward, of Leroy, N. Y., had on exhibition a lot mainly of his "Hopes," coming from "Hopeless," by "Horatio,"—imported by the Livingstone County Company, which in Mr. Ward's hands fully sustain their high reputation. Wm. W. showed the bull "Monarch," by "Oxford Lad," an animal much like his sire in color and points—also, a young bull by "2nd Duke of Geneva," out of the fine cow "Constance 2nd," and as might be expected from the union of such parents, the calf is a choice one.

Hon. A. B. Conger showed a herd of cows and heifers of rich breeding, but too low in condition to do justice to their blood or breeder; also, a large, grand aged bull, bred by Mr. Thorne. Craig Wadsworth had a lot of good, useful-looking animals, evidently direct from their pastures without special preparation for a show. Messrs. Wolcott & Campbell showed some good young things, and a fine cow, "Grace Darling," much resembling the well-known show cow "Miss Belleville," from which cow "Grace Darling" remotely descends.

Hon. Ezra Cornell came out this year in great force, but for lack of a show bull did not enter for the herd prize. A light roan, "Princess," is the best of her family we have seen, an even, level beast. A red yearling of the "Lucy Ann's," a strain, Mr. C. is very partial to, descending from the cow "Caroline," by "Dashwood," imported by Walter Dun, of Kentucky, in 1836, shows the capacity of Short Horns for early maturity. She is full in all her points, and particularly good in her crops and heart. A roan "Lucy Ann," two years old, is much like the above in her general characteristics. "Kirkleavington," a rich roan, three year old heifer, by "3rd Lord of Oxford" (exported to England), is a capital specimen of the Bates' blood, with a strongly marked head, rough, but waxy horn, short fine neck, brisket wide, deep and projecting, well filled crops, with extraordinary wide loin, hips and rump, filled with flesh of first quality—as a whole one of the very best tops we recollect on a young cow. Her defects are those of her blood; she is too thick and heavy in her shoulders, and this makes a slight flatness in the fore ribs look worse than it is. All Mr. C.'s stock show evidence of careful training.

Mr. M. A. Cochrane, of Montreal, added largely to the attraction of the Short Horn show, taking, as he did, the gold medal for the best herd, with the young bull "Baron Booth," a very evenly good, red eighteen months' beast, strongly dashed, as his name indicates, with Booth blood. The cows were, "Sanspareil," a great, strong beast, bred by Mr. F. W. Stone, of Guelph, with grand hind quarters; the beautiful, white three-year old heifer "Snowdrop;" "Maid of Athol," a red and white three-year old, very even, stylish and attractive, with promise of a distinguished career in the show-yard, if she is gone on with; "Maggie," a red two-year old, very neat and stylish, but stripped of some of her points by her calf;—but all the cows and heifers just named pale before the world-renowned cow "Rosedale," so well known on two continents as to need no description. We were glad to see that "Rosedale" gives promise of adding a calf to the Compton herd within a few weeks, by the "11th Duke of Thorndale." Mr. Cochrane also showed a yearling heifer, a good specimen of Major Duncan's breeding, and the heifer calf "Wharfdale Rose," recently imported from England.

In Ayrshires, Messrs. Wolcott & Campbell showed a herd all descending from a beautiful little short-

legged cow, "Handsome Nell;" only one, beside the old cow—"Nannie"—is in milk, and these two show the milk-veins and udders for which the breed is celebrated; altogether a neat lot of cattle. Messrs. W. & C. also showed several good Jersey cows, as did Messrs. Dinsmore & King. Each of these breeders showed very fine aged bulls of the Jersey breed.

In Devons, Joseph Hilton exhibited a lot of ten, and Walter Cole, of Batavia, twenty cows, all good, and some extra. Among the latter sort we place ten "Helenas," descending from the "Helena" importation by Gen. Wainwright. This sort of Devons are usually quite light-coloured, but are quick feeders and often good milkers.

The only Herefords were those forming the herd from Compton, and these were so good that the gold medal was awarded to Mr. Cochrane, although they had no competitors.

In Grades we saw nothing of note. A few Galloways were exhibited—our notes do not give the names of owners. In fat cattle there were no monsters, so attractive to the crowd, and we noticed but some half a dozen good, fairly fed oxen.

As a whole, the cattle show was a good one, and many useful lessons could have been learned from it. Many breeders of Short Horns, for the first time, saw in "Rosedale" a grand specimen of the Booth cow, with her immense carcase and remarkably fine bones. The Short Horns, for the first time in some years, were judged by the scale of points, which in some instances gave decisions at variance with the popular voice. We fancy the show cow that can fill the 100 points of the scale has yet to be bred. Perhaps this pitch will be reached when breeders can unite the excellencies of the two representative cows in the Rochester show ring; the grand, fine ribs, fore flank, heart and shoulders of "Rosedale," with the long, level, wide hind-quarters and flank of "Kirkleavington."

We must not omit mention of the sheep. In this department the Merino usurpation is fast coming to an end on the other side, and the long-wooled classes are asserting their just claims to a division of honour and attention. While the Merinos were present in considerable force, there were also numerous and fine specimens of Leicesters, Lincolns, Cotswolds, and Southdowns. Mr. Cochrane, of Montreal, took first and second prizes for Leicesters and Lincolns, and made a clean sweep of the Cotswold premiums. Some very decent grade sheep were shown. The pig department was well filled, chiefly, however, by the larger breeds, Chester Whites predominating. A really good display of poultry was on the ground, Brahmas, Black Spanish, and Leghorns being especially prominent.

In the Implement Department there was of course considerable similarity between the New York and New England fairs, inventors and manufacturers very naturally making the tour of the fall exhibitions to bring their wares into public notice. We must refer our readers to the very full report of the New England fair which appeared in our issue of Sept. 16th, for an account of such implements as were exhibited on both occasions. At present we shall briefly advert to those which came under our eye at Rochester only. A number of machines were exhibited from the Rochester Agricultural Works, among which were Hubbard's double-speed mowers and self-raking reapers. The advantages claimed by the exhibitors of these machines over others of the same class on the grounds are important. For instance, both driving wheels are going continuously. Furthermore, by changing the gear shifter you increase or lessen the speed or motion of the cutter, so that in a field where the grass is thin there is no necessity for running the cutter so rapidly as to shake the machine almost to pieces. Again, it has no ratchet wheels nor extra gearing to accumulate earth and clog the working of the machinery. "Farmers' Favourite," a continuous feed, double distributor grain drill, from Bickford & Huffman's Agricultural Works, Macedon, N. Y., attracted a good deal of notice, and we will briefly state its merits. It embraces a simple arrangement for putting the drill in gear with the tubes down for work; a double distributor; sowing coarse and fine grain alike, with accurately double and reversible points or tubes, in single row or zig zag as desired. The exhibition given of the distribution of grains by Mr. S. W. Gallup, their general agent, satisfied us that it will distribute all grains with certainty and continuously. The tube lifter accomplishes its work with ease and very little labor. The grass seed and fertilizing attachments are very simple and practical. In this department may also be mentioned McConnel & Jones' street sweeping machine. A. H. Wood had on exhibition a portable engine, which can be employed in threshing, sawing wood, cider making, &c. This engine is mounted on cast iron wheels, hubs and rims four inches wide, with a double set of wrought iron spokes. The wheels raise the boiler high enough to clear any part of the road, so that it can be moved from place to place without detaching any part of the engine. The Pioneer Stump-puller, entered by O. A. Church, of New Berlin, Chenango County, N.Y., is one of the simplest and yet the most powerful machines of the kind. Two men can raise a weight of 25,000 pounds and pull 100 stumps a day with it. The action is quick, it is portable and durable, and the price, sixty dollars, is small to any farmer who has stumps to pull or rocks to dig. Patrick's Improved pump, for watering stock, attracts a good deal of attention. Silas R. Kenyon had a patent Corn Husker, and E. B. Roberts a neat machine for cutting weeds, cultivating and hoeing. There was a good display of the Gordon Empire Feed Cutters, Grain Separators, and Smut Machines of all sizes. The hardware firm of Pollock & Weaver, had on exhibition a large number of Agricultural Implements, comprising Feed Cutters, Shovels, Rakes, Forks, &c., from their establishment in Rochester. There was a great number of Potato Diggers with their various improvements.

"The Iron Clad" is the name of a brick machine in operation on the Fair Grounds. It was exhibited by the inventor, Mr. J. A. Lafler, of Albion, and has several points of excellence. It makes three different kinds of brick; common, pressed and stock brick. Pressed brick can be made with it in rainy weather as well as in fair, and the inventor claims that the work of brickmaking can be commenced three weeks earlier with this than with any other machine. Daniels' Patent Adjustable Wheel Tire Tightener is a very simple and convenient attachment to a wheel, so concealed as never to be noticed, by which the tire can at any time be made perfectly tight by turning a nut. The tire of any waggon on which this tightener is used can be *set* in two or three minutes better than any blacksmith can do it in the usual way, thus saving much time and money. It can be secured by addressing—James Ort, Mechanicsville, Pa.

One of the most useful and durable things to any farmer who works or ever expects to work a mower or reaper, is the Emery Knife Grinder, manufactured by the Emery Grinder Company, Auburn, N. Y. It will grind four times as fast, and last ten times as long as a grindstone—is not affected by sun or rain; grinds out all the nicks and never draws the temper of the steel. For circulars giving full description, address E. G. Starke, Secretary of the Company, Auburn, N. Y.

Two very efficient Ditching Machines were shown, and put to actual trial. The Heth Ditching Machine is strongly-made, simple, and does good work, making a complete ditch by once going over the ground, and leaves it ready for the tiles. It dug a ditch, thirty-five feet in length, in nine minutes. The Chicago Ditching Machine is a still more efficient one. It dug a ditch, forty rods in length, in fifty-two minutes. This machine is considered the best yet known in the United States. It was exhibited by C. H. Beardsley, Secretary of the Chicago Ditching and Spading Company. "Buell's Improved Seed Washer," for washing out apple and other seeds, is worthy the attention of nurserymen and others. It is made by Messrs. Buell, Maulins, N. Y. The "Farmer's Boiler," on a new plan, cooks, heats and steams food for stock at a wholesale rate, and is especially convenient for those who keep a large number of animals. E. E. Sill, Rochester, N. Y., is the agent and manufacturer of it. Several dairy articles may be mentioned. "Westcott's Return Butter Pail" is a contrivance for sending butter to market in the best possible trim. They are eighteen dollars per dozen, hold fifty pounds each, and are made by Cady Silsby, of Seneca Falls, N. Y. Skinner's Patent Butter Worker and Churn Power, lessens and lightens dairy labour. Price, including churn and bowl, $15, E. H. Bancroft & Co. manufacturers, Syracuse, N. Y. "The Combined Paper Box and Bandage" is an invention worthy the attention of factorymen. It saves the expense of bandage, is lighter than the ordinary box, lessens trouble in cheese-making, diminishes the shrinkage, prevents the formation of thick rind on cheese, and retains the aroma in it, thereby making a richer and better article; at least so say the patentees, Utley, Kimball, and Reynolds, of Watertown, Jefferson County, N.Y. Messrs. Ralph and Co., and O'Neill & Co., of Utica, exhibited a number of Dairy requisites with various improvements in them. A Grape Trellis that can be readily tightened or loosened was exhibited by T. G. Yeomans of Walworth, Wayne Co., N.Y. A Hoisting Machine for the use of merchants, having great lifting power and yet very portable, was shown by G. F. Senter, Albany, N. Y., also a modification of it for the use of farmers as a hoisting machine and a binder of loads of hay and grain, to prevent their shifting and tilting on an uneven road. Joseph H. Chadwick's Carriage Spring Brace, a contrivance to prevent buggy springs from losing the perpendicular, was shown by G. S. Farwell, North Chill, Monroe Co., N.Y. Some articles of domestic convenience were on the ground, among them "Galvanized Portable Ovens," (to surpass the old-fashioned brick oven,) made by G. S. Blodgett & Co., Burlington, Vt.; a "Vegetable Grater," for grating carrots, potatoes, apples, horse-radish, &c., *warranted to grate a carrot in a quarter of a minute*, made by H. Arthur, Lowville, Lewis Co., N. Y., and the "Automatic Clothes Washer and Boiler," which dispenses with friction and chemicals, drives the hot suds and steam among and through the clothes, leaving nothing to do but rinse them: patentee, W. B. Watkins, 19 Cortland St., New York.

In the mechanical department, a great variety of machinery was exhibited, and was seen to special advantage, the Society having provided ample steam power, band-wheels, &c., to enable machinists to set their machines at work. Shingle-making, planing, boring, mortising, Venetian-blind slat-splitting, stave fitting, &c., &c., rendered "Mechanical Hall" a lively and attractive place. We would suggest this as a feature that might be introduced to advantage in our own Provincial shows. It would attract both exhibitors and spectators. "Floral Hall" was gay with flowers and tempting with fruit, especially grapes, of which there was a superb collection. "Domestic Hall" was filled to repletion with a bewildering multitude and variety of articles. The display of farm waggons and carriages was very fine. Cooking, parlour, and hall stoves were shown in great diversity of size and pattern, also kitchen ranges, and furnaces for heating first-class dwellings and public buildings.

For the first time at one of these exhibitions, we encountered an official dignified with the title of "Superintendent of the Press" in the person of W. H. Bogart, Esq., a veteran editor, we forget of what paper. His business was to do the polite to visiting Editors, and we gratefully acknowledge that his treatment of us was entirely in keeping with the motto that embellished the front of his office—"*None come too early, none depart too late.*"

Toronto Veterinary School.

This valuable Institution will re-open, as will be seen by advertisement, on Wednesday, Nov. 11th, for second and third year students, and for first year students on the 6th of January, 1869. We are happy to hear of the continued prosperity of this School of Veterinary Science, the existence of which, in the Province of Ontario, is of great importance to the agricultural community. Already a large number of well-qualified practitioners have been trained by its means, who are now distributed over various parts of the country, and whose services are available to the farmer in place of the often mischievous interference of ignorant farriers. Such schools of instruction are valuable, moreover, in disseminating generally a better knowledge of the animal economy, both in health and disease. Indirectly, they educate the people as well as the profession.

The School is under the able direction of Andrew Smith, Esq., assisted by Professor Buckland, and Drs. Bovell and Thorburn.

Fall Shows.

We have devoted considerable space in the present issue to accounts of the Middlesex and London Show, and the New York State Fair, and nearly the whole of our last number was occupied with reports of the agricultural and horticultural departments of the Provincial Exhibition. It would require, in like manner, the greater portion of the present number to notice, however briefly, the numerous County and Township Shows that have been held during the past fortnight in various parts of the Province. We read of one or more in every exchange that we open, but unless some special account has been officially sent us, it has not seemed desirable to notice any one particularly. Indeed, to have done so would have involved us in a vast amount of almost unavoidable repetition, which would have been tedious to our readers. So far as we can learn, the Exhibitions have been creditable to all concerned, and give evidence of material progress. At St. Catharines, the County and Township Shows were amalgamated, and an unusually good Exhibition was the result, which will no doubt lead to a repetition of the union in that county, and perhaps to the example being followed with good effect in other sections of the Province. The Toronto Electoral Division Agricultural Society's Show, held on the 1st of the month, and which of course we visited in person, was a successful though hastily-arranged affair, and for want of suitable accommodation, destitute of any show in live stock. Throughout the country, grain and root crops have been well represented, and the quality has in general been above the average. "Superior to any previous Exhibition" has been the verdict in a large majority of the reports that have come to hand. Surely, with so much cause for congratulation, we should, after the worthy example of our neighbours in the United States, institute a day of National thanksgiving for the bountiful harvest, and other blessings of Providence, that have fallen to our lot.

☞ The Nova Scotia Agricultural Exhibition, of, which we hope shortly to receive full accounts, is said to have been very successful.

Stock Sale.—The attention of farmers generally and of stock-breeders is directed to the advertisement in our present issue of the important sale of stock to take place on Mr. Snell's farm, at Edmonton, on Wednesday, Oct. 28th. Mr. Snell's stock have attained a continental reputation, and we doubt not the mere announcement of the sale will secure a large attendance of buyers. The sale comprises Short-horn cattle, Leicester, Cotswold and Southdown sheep, and improved Berkshire pigs.

Russell County Agricultural Exhibition.—We have received an interesting account of the Exhibition of the Russell Agricultural Society, which took place at the Village of Metcalfe on Friday, Sept. 25th, and was a very successful affair. There was a good show in all the departments, a large assemblage of visitors, and some capital addresses by Hon. S. L. Tilley, Hon. James Skead, Hon. Col. Gray, of New Brunswick, and Dr. Grant, M.P., for the County of Russell. A lacrosse match was added to the attractions of the day, and the annual dinner of the Society closed the proceedings, which seem to have been altogether very satisfactory.

The American Entomologist.—We would especially direct the attention of our readers to the advertisement of this new entomological journal, which we noticed in the Canada Farmer for Sept. 15th. We would again most cordially recommend this important and useful periodical, not only to students in Natural History, but to all engaged in practical agriculture or horticulture. Persons residing in Canada can be supplied with the *American Entomologist*, postage free, by remitting one dollar to the Rev. C. J. S. Bethune (Credit P.O.), Secretary of the Entomological Society of Canada.

Agricultural Intelligence.

Meeting at Rochester—Cattle Disease.

On Wednesday evening, Sept. 30th, a meeting was held in the Osborn House, Rochester, for the purpose of considering the propriety of holding a convention with reference to the cattle plague. The following gentlemen were present:—Hon. I. S. Gould, Hon. L. F. Allen, General Patrick, Commissioners of the State of New York; Hon. C. Christie, President Board of Agriculture, Ontario; Thos. Stock, Esq., President Agricultural Association, Ontario; Hon. A. A. Burnham and Col. Denison, members of the Board of Agriculture, Ontario; and other gentlemen connected with the N. Y. State Agricultural Society.

The gentlemen from Canada attended in compliance with an invitation extended to them by Mr. Allen on the part of the Commissioners of the State of New York. The meeting was agreeable and important. There was entire unanimity of opinion as to the necessity for a Convention. It was deemed the only way to bring about uniformity of legislation with reference to this important matter. We give the following summary of the business done at the meeting.

It was resolved to recommend to the Governments of the several States and Provinces interested, that three Commissioners from each of the States and Provinces in question be appointed by them to attend a Convention to be held at Springfield Illinois, on Tuesday, the 1st December, next.

The object of the Convention is to consider the pathology, symptomatology and history of the Spanish cattle plague, and other infectious and contagious diseases to which cattle and other stock are liable, and the methods of preventing the spread of such diseases in the best possible manner, with reference to the interests of the producer and consumer, and also to consider the sanitary requirements of the community with reference to the feeding and rest of animals "in transitu," and the best methods of inspection, slaughtering and preparing for market.

The Convention will prepare the draft of a law which shall provide for the accomplishment of all these objects, to be submitted for enactment to the Legislatures of the States, Territories and Provinces represented in the Convention.

Immigration Returns.

The following figures give some interesting information relative to the number of immigrants who have arrived at Toronto since the 1st of January last. The statement is obtained from the records of the emigration office in this city, an employé of which watches the arrival of the trains and boats. The large number of Germans and Scandinavians who pass here have, of course, only selected the Quebec route to reach their destination, which is arranged before starting on their journey from the old world. A large proportion of the last named were Mormons, on their way to Utah. The nationality of the immigrants was as follows:—English 1,692; Irish 964; Scotch 1,231; Germans 7,845; Norwegians 10,390; Danes 1,635; Scandinavians 457.

In this connection it is well to state that the immigrants lately sent out by the East End Society of London all found employment on their arrival. Nearly all were employed before reaching here by one or two gentlemen on the line of the Northern Railway.

The arrivals in each month and the proportions going to Canada and the United States are shown in the following table:—

	Canadians.	U. S.	Total.
January	50	52	102
February	67	26	93
March	100	48	148
April	165	340	505
May	465	4,408	4,873
June	768	6,987	7,755
July	765	5,625	6,390
August	721	2,689	3,410
	3,101	20,175	23,276

Showing a total passing this point of 23,276 in eight months.

The following show the destination of the different races:—

	Canada.	U. S.	Total.
English	1,588	304	1,692
Irish	602	364	966
Scotch	1,047	184	1,231
Germans	60	7,785	7,845
Scandinavians	4	11,051	11,055
Danes	0	457	457
Other countries	0	30	30
	3,101	20,175	23,276

☞ More than 10,000 people, says the *Times*, were present at the County of Peel Fall Fair, held last week at Brampton.

☞ The sinking of the salt test well at Port Elgin proceeds satisfactorily. It is now nearly six hundred feet deep.

☞ Mr. Joseph Parkinson sold a Durham cow and calf recently to Mr. Aitcheson, Guelph Township for the sum of $230; also two ram lambs for $50.

☞ Bears are numerous and audacious around Ottawa city. Last week a fine prize cow belonging to Mr. James Armstrong, was selected out of a herd at pasture, and mangled by them.

Peppermint Culture.—Lyons, Michigan, has a hundred acres of peppermint under cultivation, and has made this year a thousand pounds of pure oil, and is still at it. The oil is worth $8 a pound.

Wintering Cattle in Quebec.—The Montreal *Witness* says that the scarcity of fodder in Ontario, as compared with the greater part of Quebec, has induced speculators to buy up droves of young cattle in the western province and take them there to winter.

Crops in Great Britain.—The British Board of Trade has made known the chief results of the official Agricultural returns of Great Britain for 1868. The number of acres in wheat for the current year was 278,384 more than in 1867; an increase of 8.2 per cent. The decrease in the breadth of barley sown was 109,963 acres, or 4.9 per cent. In live stock—Cattle show an increase of 8.5 per cent; sheep of 6.1 per cent; pigs 2.2 per cent. The land under potatoes in Great Britain this year is 539,554 acres against 492,217 in 1867. The acreage under hops is slightly increased.

United States Hay in Great Britain.—In consequence of the existence of the cattle disease in the States, extra precautions have been taken in Great Britain with regard to the introduction of American hay. Early in September the official *Gazette* contained an Order in Council made on the 15th of that month, under which hay brought from any port of the United States to any port or place in the United Kingdom is not to be landed without a license duly obtained from the Privy Council, and its use, even under these conditions, is restricted to horses.

Large Farms.—Twoe nterprising gentlemen, of Harrison county, Ohio, have purchased a township six miles square in Nebraska, of Government land, and propose to convert the whole into one grand farm of 23,040 acres. They intend to inclose it with a hedge of osage orange 24 miles in extent, and will put up cross hedges 12 miles in length. They will hire all their labour, and use the most improved agricultural machinery, intending to put the whole farm into wheat as fast as possible. It will require 20,000 bushels for the seed of such a farm. A colony is also being formed in Chicago, under Mr. Amos Duffield, for the purchase of another township in Nebraska for the same purpose.

Short Horn Sales.—Mr. John Snell, of Edmonton, sends us the following list of his recent sales of Short Horns:—To Jas. S. Thompson, Whitby—"Fairy Duke," by "Duke of Bourbon," 184; dam "Fairy," by "Prince of the West," 588; and "Rose of Allandale," by Duke of Bourbon," dam "Emma," by "Cheltenham," 655.

To Mr. Jonathan Knaggs, of Bothwell—"Bell Duke of Solway," by "Duke of Bourbon," dam "Mary Grey," by "Baron Solway," 45; and "Annie Laurie," by "Duke of Bourbon," dam "Kitty Clover," by "Baron Solway," 45.

To Mr. Wm. Smith, Whitby—"Diamond Duke," the second prize bull calf at Hamilton, by "Duke of Bourbon," dam "Regina," by "Prince of the West," 588.

To Mr. R. B. Ireland, Nelson—"Kentucky Baron," by "Baron Solway," dam "Queen Mary 5th," by "Grand Duke," 2933 A. H. B.

Entomology.

A Man-slaying Caterpillar!

"Death in the Tomato Patch.—Most persons who are familiar with the tomato plant know that it is infested—more in some localities than in others—by a huge green worm, two or three inches long, and as large as a man's little finger, its forehead armed with a stiff horn or spike. Various reports have of late been afloat in the papers with reference to the poisonous character of the 'bite' of these worms; but we suppose the danger, if there is any, lies in the sting or puncture from its horn, and not in the bite. A few days since we heard an account of a case which occurred in Red Creek, Wayne County. The family sent the hired girl to pick some tomatoes, and while so engaged she felt a sting like the sting of a bee in her hand. In a short time the poison seemed to have penetrated to every part of her system, and she was thrown into spasms, her movements representing those of the worm. In her most violent periods it required the efforts of two or three persons to hold her. She was alive at last accounts, though it was not thought possible for her to recover. So says the Auburn *Advertiser*."

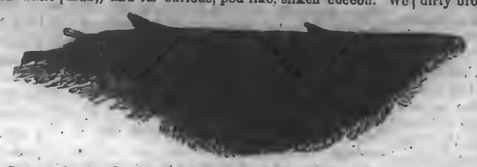
Every autumn a similar wonderful story to the above goes the rounds of the newspapers, and strikes terror into the hearts of the tomato-gatherers. Upon what foundation of truth, if any, these statements rest, we have never been able to discover, and yet, from their constant recurrence, one would think that there must be something at the bottom of them. The caterpillar in question is, we believe, perfectly harmless; we have frequently handled them, and other similar larvæ, with perfect impunity. It is absolutely impossible for the insect to hurt any one with its so-called "sting," which is simply a thorn-like horn incapable of penetrating the flesh, and situated not on the *forehead* of the caterpillar, but quite at the other end! We have often tried to force this horn into the skin of our hands, but never found it stiff enough to make a puncture; even, however, if it were to pierce the flesh, it could do no more harm than the prick of a coarse pin, as it is furnished with no poison or "noxious distilment" of any kind. The insect referred to is the caterpillar of either *Sphinx Carolina*, which is not found in this country, or *S. quinque maculata*, common here on the potato and tomato.

It is not at all unlikely that, in the case referred to above, the girl was stung by a ground-wasp or hornet, whose sting produces sometimes very serious effects, and that the innocent tomato-worm, on account of his large size, ugly looks, and threatening horn, was pronounced the culprit instead. Before believing the latter's guilt, we should wish to hear of one single well-authenticated case that occured in the presence of an entomologist, or one accustomed to notice the differences between small objects in nature, and who could distinguish, at any rate, between the head and tail of a caterpillar.

The Cecropia Emperor Moth.

Non-collectors of insects, who see for the first time specimens of this and other large native insects, are usually filled with amazement at their size and beauty, and scarcely credit the statement that they are veritably indigenous to Canada. Being nocturnal in their habits, the Emperor Moths—of which we have five species in Canada—are but seldom seen except by collectors and others who take the trouble to rear them; their cocoons and caterpillars, however, are much more frequently met with; the former, in the case of the moth before us, being especially conspicuous on the leafless boughs of apple and other trees.

According to promise, we now give a life-size illustration of the Cecropia Emperor Moth, (*Samia Cecropia*, Hüb,) and its curious, pod-like, silken cocoon. We



lately (C. F., Sep. 15, p. 278) gave a brief description of the egg, caterpillar and cocoon of this magnificent insect; the illustrations now presented will enable any of our readers to recognize the moth itself, and will perhaps encourage them, when they find one of the cocoons, to endeavour to rear the insect, and obtain a live specimen for themselves. All that is

necessary is to keep the cocoon in a cool room during winter, shade it from any direct rays of the sun, and take care when it does come out, (about the end of May or beginning of June,) that it does not fly out of the window. The best plan is, perhaps, to place the cocoons in a gauze-covered box, and keep them in a room where there is no fire; when warm weather comes on in the spring, the box should be examined daily, and the specimens removed as soon as their wings are fully expanded; they can easily be killed with chloroform or ether.

The upper figure represents the cocoon, which is composed of strong tough silken fibres, closely agglutinated together; after being boiled for some time in an alkaline solution, the silk fibre can be unwound and made use of, producing a very durable fabric. Another moth, however, of the same family (*Telea polyphemus*, the Eyed Emperor,) is the best for this purpose, and is now being largely raised by an enterprising gentleman in the United States.

Beech Aphides.

To the Editor of The Canada Farmer:

Sir,—Enclosed herewith I send you a box of specimens of insects infesting the beech trees in the neighbourhood of Kempenfeidt Bay, Lake Simcoe. They fairly cover the leaves and branches, and some of the trunks of the trees, so as to become a serious annoyance to those parties working in the woods. Will you please name them in the next number of the Canada Farmer, and give any items of their history which may be known to you.

ALLANDALE.

Innisfil, October 8, 1868.

Note by Ed. C. F.—The specimens referred to above are a species of Hemipterous insects belonging to the *Aphididæ*, or Plant-lice family. They are of a dirty brownish colour, varied with dark olive above, about a tenth of an inch long, of a somewhat oval shape. Like all the "bug" tribe, they are furnished with a long proboscis, through which they suck up the sap and juices of plants; their enormous numbers render them very injurious to vegetation. They are probably the most prolific of all insects; of one species it has been computed that a single female produces ninety young ones, all females; these ninety produce 8,100; and so on till the eighth generation reaches the almost incredible number of 441,461,010,000,000; there are eleven generations in the year. Were it not for the many carnivorous insects and other creatures that prey upon them and keep them in check, they would destroy the whole vegetation of the world in a short time. We have frequently referred to the carnivorous insects that feed upon the various species of plant-lice, but we cannot too often direct attention to them and plead with our readers for the preservation of their lives. The different species of lady-birds (*Coccinella*) both in their larval and pupa states, are the most useful of all; fortunately, they are well known to all, even children, and are usually spared the fate that awaits almost all insects that come in people's way. We know of a field of hops saved from destruction by their means.

Notes on a New Grape Insect.

To the Directors of the Fruit Growers' Association of Ontario.

Up to the present season we have not been aware of the presence in Canada of any insect injurious to the fruit of the grape. In the United States—at least in parts of Illinois and Ohio—they have been troubled with a grape curculio (*Coliodes inæqualis*), a small oval snout beetle, about one-tenth of an inch long, and of a dull black color, with grey markings. These have punctured the fruit and deposited an egg in the puncture; this egg has in a short time produced a larva, which has burrowed into the flesh of the fruit and destroyed it, causing it usually to drop from the vine before maturity.

It now becomes my duty to chronicle the advent of an insect which I believe to belong to the same family, although much smaller; and while it has never been seen, as far as I know, by any previous observer, it must have been carrying on its destructive mission for years past.

In August of the present season I observed many of the berries on a Clinton vine in my garden shrivelling. Thinking at first it was due to the excessive heat of the summer, I paid little attention to it; but finally this abnormal condition prevailed to such an extent as to excite me to a close investigation as to the cause. On opening the berries, I found in the smaller ones usually one seed very much swollen, and one or more dwarfed and imperfect. In some larger berries I found two large seeds, both much swollen and rather soft. In most instances a dark spot was observed on some part of their surface. When these seeds were cut open, the kernel was found to be almost entirely consumed, and the cavity occupied by a little white grub, from one-fifteenth to one-twelfth of an inch long, without legs, and with a pair of brownish hooked mandibles or jaws.

From its appearance, I am of opinion that it is the grub of a small species of curculio, or snout beetle, which will probably enter the pupa or chrysalis state within the seed, and when perfected, gnaw its way through its hard enclosure, and escape to renew the work of destruction. The parent insect probably punctures the grape and deposits the egg under the skin. Many of the grapes have a small scar, as if resulting from an operation of this sort. The young larva, as soon as hatched, must work its way directly to the middle of the fruit, and there enter the seed while young and soft. There is no appearance in the pulp of the fruit of its being channelled or eaten.

Fully ten per cent. of the fruit on the Clinton vine was destroyed by this pest; and I had concluded that here the damage ended, and that by destroying the injured berries I should be tolerably safe against future attacks; but on a closer examination, I found that some of the seeds in the ripe fruit were also occupied by this unwelcome tenant. To ascertain the extent of the insect's work in this department, I examined the seeds from one hundred berries picked at random from different branches on the vine, and found about ten or eleven per cent. of the berries affected. In every case where the berry ripened, there was at least one good healthy seed in it, sometimes two, associated with the diseased one, and this healthy seed had enabled the berry to mature.

Around this Clinton vine, and all within a few feet of it, I had fruiting the Isabella, Hartford Prolific, and Concord. No shrivelled berries could be found on either of these vines, nor any diseased seed in the ripened fruit of either Hartford or Concord; but in the Isabella about three per cent. of the berries contained an injured seed. From these facts, I infer that grapes of the Clinton class, with thin skins, are more liable to injury from this insect than thick-skinned varieties, such as Concord and Hartford.

While on a visit to Mr. Chas. Arnold, of Paris, in the middle of September, I found his vines affected even worse than my own; Clinton, Delaware, and Mr. Arnold's new seedlings, were all suffering. I also found the insect in Hamilton.

In the present state of our knowledge, it is premature to talk of remedies, further than that of destroying such berries as are manifestly injured. We must learn a little more about our enemy before we can expect to combat him successfully. Time will disclose its history and identity; in the interval it will be interesting to know how far its operations extend. Should this meet the eye of any who have observed effects which might be attributed to its agency, they would confer a favor by sending me specimens for identification. Those desiring a more scientific and accurate description of this larva, will find it in the third number of the *Canadian Entomologist*, edited by the Rev. C. J. S. Bethune, Credit, Ontario.

W. SAUNDERS.

London, October 6th, 1868.

Address of the President of the Fruit Growers' Association.

Delivered at the annual meeting at Hamilton, Sept. 22, 1868.

Gentlemen of the Fruit Growers' Association of Ontario:

Owing to the changes which have taken place since our last annual meeting, brought about by the introduction of sections 32 and 33 of the Act 31st Vic., chap. 29, altering the status of this Association, it occurred to me that a short review of its past history, with a few remarks touching its present position, might not be considered an inappropriate subject for an address. Such a review would also afford me an opportunity to bring fresh to our memories the names and some of the acts of those men who first organized and sustained it. Unmistakably, it seems to me, they were animated with a desire to develop Canadian fruits, to advance the morals of the people, secure their happiness and health, promote industry, and establish a love for home; and may I add among the many advantages of this pursuit, it opens the heart to the study of nature, and thus reveals some of these Divine truths which master the fear of death. Thus, while while we justly rejoice in the prosperity of this society, we shall be reminded of those who started with us, but have since "gone home to their Father's house, and now roam on the banks of the river of peace."

As public benefactors, they deserve a tribute of respect. Among these we must honour the name of the late Judge Campbell, of Niagara, who was elected first President, and entered upon his duties with that true patriotic zeal which stamped the society's future success; and with him let me mention the name of our highly esteemed citizen, the late Dr. Craigie. These gentlemen by their united and personal efforts gave this society birth, and sustained it in its infancy. Long may we remember, with heartfelt gratitude, these departed friends. I can fancy they are able to see, from their rest in the bosom of God, that the good deeds of just men live after them.

One of the first steps taken by the founders of the Association was to procure the assistance of certain zealous fruit growers possessing similar tastes, many of whom I am pleased to see assembled here to-night—men who started at the commencement of the work, and still continue to labour for the advancement of the art and science of fruit culture, and thereby for the good of the public. I feel honoured in having my name recorded side by side with these men in the society's journal, as a co-worker. They held their first meeting on the 19th day of January, 1859, in the Board Room of the Mechanics' Hall, in the city of Hamilton, not quite ten years ago. This certainly is not a long time for a society to be placed upon its trial in establishing public taste, particularly when we consider that the formation and working of any new undertaking is most frequently attended with incidental delays. Our society cannot claim exemption from this disadvantage. It is only a matter of surprise that it should have overcome so many difficulties; these were presented in the death of the first President, the distances separating its members, and the necessary expenses entailed upon each in travelling to and from their places of meeting, and in having no recognized means to publish its proceedings excepting that supplied by private liberality. There were eighteen gentlemen present at this first meeting. After the chairman and secretary were appointed, it was unanimously resolved to form a Fruit Growers' Association for Upper Canada. A constitution was agreed upon, and by-laws carefully drawn and passed. After having done this they proceeded to appoint their officers, when, by common consent, Judge Campbell was received as first President; Dr. Hurlburt, 1st Vice; Mr. George Leslie, 2nd Vice; Arthur Harvey, Recording Secretary; J. D. Humphries Corresponding Secretary; and Edmund Kelly, Treasurer. These, then, were the first gentlemen who took upon themselves the responsible duty of conducting the affairs of the Association. But we do not see by any record in the minute book that Judge Campbell ever had the pleasure of presiding at any subsequent meeting. The society sustained in his death so great a loss that there was no further meeting, or effort taken to secure one, for nearly two years thereafter. But at length, through the efforts of Dr. Craigie, the members from their different points of residence were once more called together on the 21st day of September, 1860, during the time of the Provincial Exhibition. At this meeting the first Vice-President, Dr. Hurlburt, took the chair, and Dr. Craigie acted as Secretary, in the absence of Mr. Harvey. Only nine members presented themselves; there was no business transacted of any public importance. They resolved to adjourn and meet again on the 24th of the following month of October; each member was then requested to bring some specimens of fruits along with him, for the purpose of opening discussion. At this meeting in October, they seem to have made again a very fair start. There were seventeen present; quite a respectable show of specimen fruits were laid on the table, upon the merits of which an animated and profitable discussion took place. At the close of this session an adjournment was moved, to meet again on the 16th day of January, 1861, this being the time of the regular annual meeting for the appointment of its officers. After reading the minutes of the last two meetings, the Vice-President, Dr. Hurlburt, delivered an address on the culture of the grape in Canada. Three fruit reports were read and referred to committee; one of these came from their late lamented President. The Association then proceeded to elect its officers, when Judge Logie, of Hamilton, the second President, was duly installed, and your present able and most efficient Secretary then received his appointment to that office, which he still continues to hold, with most satisfactory attention and ability. The old constitution and by-laws were at this meeting remodeled, and made to suit the requirements of the re-organization. This highly esteemed and popular President was annually elected, and continued to hold the position with much benefit to the society, for six years. It was during his Presidency decided to hold three meetings each year for the discussion of questions relating to fruit culture, and for the diffusion of useful information. These meetings were held at St. Catharines, Paris, Toronto, Grimsby, and Hamilton. They were, at times, poorly attended, requiring push and solicitation to keep life in them, simply because the farming community, and public generally were, and are still to a great extent, unable to appreciate the benefits of such an institution in their midst. Slowly, however, these fruit-growers have gone on from year to year, gathering valuable information, which from time to time they have published, and thus people have become more interested in the better sorts of fruits, and, I am happy to say, are now rapidly acquiring an appreciative taste which does not fail to exhibit itself in a display, at some of our shows, of the very finest specimens of their kind, which may fairly challenge the competition of the world.

In the year 1863 the Association adopted a report embracing returns made by gentlemen and fruit committees, from thirty counties of Ontario, describing the several varieties of fruits most successfully grown in these localities. A new report is now under consideration by the directors, and when completed, which will scarcely be accomplished in twelve months will be a valuable directory.

Reference to the old report will enable any member to see that a large amount of labour attended the undertaking. The cost of printing alone was one hundred and eighteen dollars; this was cheerfully borne, in addition to other expenses. Thus the society has continued to utilize the fruits of Canada. Its reports, discussions and essays, have, from time to time, been printed and circulated through the columns of the Canada Farmer. But hereafter its proceedings, in addition to publication in that journal, will be printed in pamphlet form, and a copy of these proceedings presented, without charge, to every member of this Association. It will present an annual valuable record and guide in fruit culture, easily accessible for reference, and for real usefulness worth five times the amount of the annual subscription each member is required to pay.

During the Presidency of Judge Logie, the society continued to increase its membership. On the 16th day of January, 1867, the list numbered about eighty; this being the time for the general annual election of officers, upon the retirement of Judge Logie, the present incumbent received the appointment, and a re-election in January, 1868. Shortly after this date, the Government, in the Act for the encouragement of agriculture and horticulture, introduced certain clauses which enabled this society to become incorporated, under

the name and style of "The Fruit Growers' Association of Ontario," with important privileges therein set forth, one of which is the grant of three hundred and fifty dollars per annum, a very small sum compared with the amount of services and good rendered to the whole country by the encouragement of fruit production. Besides, it bears no just proportion to the grant made to each county division. I am satisfied, could the members of the House, who were in committee on the Bill, have had the subject properly explained, the grant would never have been less than seven hundred dollars per annum. This opinion is based on various reasons, some of which I propose here to mention. The Fruit Growers' Association would be able to procure and publish annually, by means of their discussions and reports, useful information, (such as would not be acquired by any single agricultural division), touching subjects of general and public interest. They would point out, for instance, the most suitable fruit trees and fruits for any given section, from which the immigrant and farmer could learn what to purchase for his particular soil and position, enabling him to secure a knowledge of these matters without the loss of years of experiment; and they would set forth the best methods of cultivation, and the proper classification of fruits, and those best suited for market purposes—matters constantly brought before the public by the debates of practical men, always the very best scource of information that can be obtained. This is of extreme importance to all classes. It is evident that the whole of the twelve agricultural divisions would participate in the knowledge accumulated by the society, and should therefore be tributary to its support. There is also connected with this Association a practical entomologist, whose reports upon injurious insects would most materially aid the whole agricultural community in their destruction. The American *Entomologist* for September, 1868, says:—"Few persons are aware of the enormous amount of wealth annually abstracted from the pockets of the cultivators of the soil by these insignificant little creatures, which in popular parlance are called 'bugs.' Scarcely a year elapses in which the wheat crop, both in Canada and the United States, is not more or less ruined by the chinch-bug, the hessian-fly, the wheat-midge or the joint-worm. It is notorious among fruit growers that the curculio has now almost entirely vetoed the cultivation of the plum, and of late this pernicious little snout-beetle has extended its ravages to the peach, and even to the apple and pear, to say nothing of these rarer and choicer fruits the nectarine and the apricot. What with the bark-louse in the north, and the apple-worm everywhere, the apple crop in North America is gradually becoming uncertain." Very much of our success in fruit culture, as also in agriculture, depends upon a knowledge of the habits and the best means of destroying insects. Already we feel that these enemies are making rapid encroachments on our labour in field, orchard and garden, and if they do not receive checks will continue to do so. As the country becomes more settled and cultivated it will require our united efforts to keep them under subjection, and were there no other reasons offered than those advanced for increased aid, they alone should be sufficient. I do most earnestly suggest that action be taken at the next session of our Legislature, to accure an increase of aid to the fruit growers to carry out these desirable objects. A moment's reflection ought to show the Legislature that in point of usefulness this Association far surpasses any one agricultural division, and therefore justly claims a support at least equal to one of these county divisions. I trust that the importance of this subject will justify this slight digression.

The Act above referred to sets forth the course to secure incorporation, and provides that hereafter the Association should be under the control of nine directors, in addition to the other officers; therefore, immediately after the passing of this Act, your Secretary set to work and procured a declaration, to be properly engrossed on parchment, and presented the same for signatures. After obtaining more than double the number required, it was sent to the Minister of Agriculture, who duly recorded it in the Official *Gazette* of the 26th of March, 1868, thus securing to the Association the stamp of legality in its future transactions, enabling it to hold property, sue for its claims, and be sued for its delinquencies—which I trust may always be few and far between.

And for the further carrying out of this Act, a re-organization was required. A constitution and by-laws were accordingly drafted and submitted to the members of this Association, at a special meeting called for the purpose of having them adopted, with such amendments as the meeting considered advisable. This took place on the 15th day of May last, in this building. After some slight amendments they were adopted. The meeting then proceeded to appoint its officers and directors. A full statement of these proceedings was recorded in the CANADA FARMER, issued 1st June, 1868. Since then the directors have assumed the control of its affairs. They have met several times in the meanwhile, for the transaction of business, which has also been duly recorded in the CANADA FARMER. There is no doubt that these gentlemen, in their printed report, required by the Commissioner of Agriculture, will be able to show they have not been idle in furthering the interests of this Association.

They are charged with the important duty of enlarging its boundaries, zealously guarding its interest, making it at all times worthy of the confidence of the public, and a medium of correct and reliable information on all matters touching fruits, and in building up for the Province of Ontario a taste for the noble art of horticulture. They have the right, if so disposed, to establish in connection with this Association a horticultural library and museum of insects. This, in many respects, would be most desirable; it would inculcate a taste for horticultural reading, and eventually enable the public, under the patronage of this society, to receive monthly a practical horticultural magazine. As it stands, there is not one now issued in the Province, and the public are dependent on American enterprise for this most useful literature. The services of a gentleman well skilled in entomology have already been secured. All agricultural and horticulturalmen throughout the Province will look to this Association for information on all matters touching fruit culture, and it will rest with the directors to a great extent to meet this want. But there is also a duty resting upon the general public, without the performance of which this society will be much crippled in its efforts to do good. I refer to the facilities which may be offered by the people of any place in securing proper accommodation for its meetings, hereafter to take place three times a year by appointment of the directors. If they should lack in offering these facilities, or in attending these meetings, or in sending invitations to the society to meet in their respective places, I say that a lack of reciprocal appreciation will to a great extent hamper the usefulness of the Association. The benefit is universal, and therefore all should feel a mutual and personal interest in its success.

Our Railways are justly considered as incorporations which advance the interests and wealth of a country, and in affording facilities to the members of this Association to get to and from their places of meeting, at reduced fares, are most nobly confirming the consideration, besides advancing their private interests; for in proportion as the public become engaged in the production of fruits, it will have a clear tendency to increase both travel and freight, and offer great inducements to those who have a strong desire to become members, but can ill afford to pay full fare, to be present at these annual meetings. I have therefore great pleasure in stating that the Manager of the Great Western Railway, with his usual liberality, has extended to the members of this Association the privilege of travelling to and from our next meeting, to be holden in St. Catharines, in October, at reduced fares.

Probably one of the most important objects this society could pursue and seek to accomplish would be the establishment of a test garden, wherein might be proved the qualities, productiveness, and hardiness of fruits. It would afford to the hybridizer and producer of new varieties a safe and true test of merit. Such a garden, after the first cost of purchase, underdraining and fencing, could and should be made self-sustaining; but with the society's present limited aid, its members can only look forward with hope to the time when, with an increased grant, they will be able to carry this object into effect.

I may say, in conclusion, that this Association can only be considered in its youth; for until the passing of the new Agricultural Bill, it had no recognized aid to enable it to disseminate its deliberations. It has since its reorganization doubled its membership, offered premiums in the shape of diplomas, and money rewards for essays, that will tell their own story at the next annual meeting. Already several committees have been solicited to inspect and report on new fruits originated in Canada—some of them true hybrids, produced by the commendable efforts of some of its members. I feel that this address has already been sufficiently extended, and will close by expressing an earnest hope that at our next annual meeting we shall be able to show many steps in advance of our present position.

RUSSIAN HORTICULTURE.—Russia, the country of implacable winters, contains in its hot-houses the finest flowers in the world. The Muscovites possess in a high degree the love of the Goddess Flora. This is the only superiority St. Petersburg possesses over the other capitals of Europe. Thus the public will learn without astonishment that the Czar has decreed for 1869 an International Exposition of Horticulture, to take place the last of May

The Household.

The Ladies and the Canada Farmer.

To the Editor of THE CANADA FARMER:

SIR,—I have been a constant reader of your journal since its first publication, now nearly five years, and I am better pleased with it every year; in fact I could hardly get along without it, as every number has something interesting to practical farmers; but like many other periodicals, it has not attained perfection. Every close reader will notice that it lacks something, viz: contributions by the ladies. I do not remember seeing six articles specially contributed for the CANADA FARMER, by the ladies, since its commencement. It may be suggestive and profitable to inquire into the reasons for this lack of co operation—if not of interest—on the part of our fair friends. It cannot be for want of a sufficiently cordial invitation on the part of the editor, or because their contributions have been declined, for they have been repeatedly solicited to lend their aid to its pages, and anything that has come from them has been most emphatically welcomed. Neither can it be because they lack the ability of writing articles suitable for publication. The charming productions of female pens sufficiently attest the literary aptitude of the educated portion of the fair sex; and there are doubtless many such to be met with amongst our farming community, who are every way qualified to instruct and please, if they would only put forth the effort. Perhaps they are deterred by their natural timidity from the formidable publicity of appearing in print. Or it may be that, with an amiable diffidence, they presume that they could communicate nothing worthy of publication, that what they know is already known to all the readers of the paper. Some may be waiting for others to set the example; and it is just possible that some may be unwilling to impart their household information, lest by making it common property they deprive themselves of their fancied superiority.

Be the reason what it may, this reticence on the part of the rustic fair is much to be regretted; and it would be well if they could be stirred up to contribute their quota to enhance the interest and value of the CANADA FARMER. Perhaps if they knew that a fair proportion of the matter in the American agricultural papers was contributed by female writers, they might be incited to a little honest rivalry. I am satisfied there are hundreds of farmers' wives and daughters who could give interesting information, practical instruction, and sound advice on household affairs, and even on subjects of higher importance. If such would only write, and give others the benefit of their experience and knowledge, they would confer immense obligations on thousands of readers of the CANADA FARMER.

CULTIVATEUP

Ontario, Sept., 1868.

☞ Among recent useful inventions is an ironing glove to protect the hand from heat when ironing. The under part is composed of several thicknesses of flannel. Any old glove could easily be converted into such a simple yet obviously convenient and effective guard.

ADVICE TO LADIES.—Josh. Billings, in his advice to a young lady as to how she should receive a proposal, says: "You ought tew take it kind, looking down hill with an expreshun about half tickled and half scart. After the pop is over, if your luvyer wants tew kiss you I don't think I would say yes or no, but let the thing kind of take its own course."

RATS—HOW TO FIX THEM.—Chloride of lime has frequently proved a sure thing to drive rats away from any place infested by them. An ounce of it, scattered in the place where they come to feed, or wrapped in a bit of muslin, and put in their holes, where it acquires dampness, produces a gas that is not offensive to man but is to the rats. If chloride of lime is moistened with muriatic acid, and placed in a drain, vault or cellar, and closed from the air a little while, the rats will depart, because it will be death to remain. This is also a good disinfectant, and will, for a time, cure the effluvia of a dead rat. One application of chloride of lime to rat holes has driven them away for a year, and on their return, a renewal of it started them again.

Miscellaneous.

The Use and Care of Edge Tools.

As the pocket knife comes from the manufactory or store its edge is unfit for use; it may cut butter or cheese, possibly soft wood, but it will not pare finger nails nor sharpen lead pencils. It needs the hone and strop to produce an effective edge. And in the proper use of the hone or oil-stone many are quite ignorant. First, nothing but a good oil-stone is fit for sharpening a knife blade. Ordinary "whet stones," mere sand stones to be used with water; or dry, are too coarse; they are but fixed grindstones, and rapidly abrade the substance of the blade without giving it an edge. The Turkish oil-stone is greatly affected by some, but it is quite hard, and fit only for giving the finishing touch to very delicate tools. The Washita, or Ouachita stone, we prefer for pocket knives and for ordinary tools. The philosophy of whetting or honing is a gradual and mutual abrasion of the particles of the stone with those of the steel. The oil, with its glutinous quality, holds these commingled particles so that by the movement of the blade they act on the steel and abrade it very gradually. If the stone is too hard it quickly glazes, and the blade slips over a perfectly smooth surface, producing no action on the hardened steel; if too soft, the stone allows the edge of the blade to disintegrate its surface and heap up a ridge of quartz-like or flinty particles, which produce a round or "stunt" edge, that in time must be removed by the action of the grindstone. One accustomed to sharpening knife blades can easily tell when the operation of honing is going on properly, and only experience can fully teach the process. There should be a certain feeling of resistance in the operation. The motion for whetting or honing should be circular; not as in stropping a razor, merely back and forth. The educated fingers will readily feel when the blade bears properly on the surface of the stone, and will guard against the mere abrasion of the back and the cutting in of the edge. This art can be only acquired by practice.

Few can hone a razor. Some barbers have the happy faculty, but generally it is an art little understood. The stone should be a fine Turkish stone, perfectly clean, and the oil used should be purified porpoise or nice sperm oil; pure olive oil is good. The blade of a razor is concave. The wedge-like edge extends in its bevel but a little way back. In honing a razor the fingers should feel the back as well as the edge of the blade bearing; the back protects the edge. The motion should be the same as in honing a knife blade, circular. Few can hone a razor properly on the first trial.

In stropping razors most people fail. They will use a too yielding medium, which rises suddenly as the edge passes over it, and undoes what has just been done. Many turn the razor or knife blade on its edge. Unless the blade is lifted clear from the strop, just before turning, the tendency is to strop off the edge already on. A blade should be drawn from heel to point, starting at the heel and drawing it diagonally to the point, and should be always turned on its back.

Oil-stones, as seen in the shops, are frequently worn concave. It is unnecessary to say that stones in this form will not produce a true edge. If the workman has not acquired skill enough to wear the stone evenly, as much at the ends as in the middle, he should occasionally grind the oil stone and reduce its surface to a level.

In the machine shop and the carpenter's shop, wherever edge tools are used—the oil-stone is invaluable. It should, however, be used with discretion. If the tool is soft a short bevel should be given to the edge; if hard, it will stand a very thin edge, but the practice of producing a temporary edge by honing or whetting will not give even the best present result, and will necessitate a frequent resort to the grindstone, the office of which is only preparatory to the production of a good cutting edge.

The use of rapidly abraiding substances, as fine quartz, emery, etc., is ruinous to good tools; and the continual employment of the grindstone not less so; while a judicious use of a good oil-stone will keep tools in order until they are almost worn out.—*Scientific American.*

The Old Negro's Logic.

A CLERGYMAN asked an old servant his reasons for believing in the existence of a God.

"Sir," says he, "I see one man get sick. The doctor comes to him, gives him medicine; the next day he is better; he gives him another dose; it does him good; he keeps on till he gets about his business. Another man gets sick like the first one; the doctor comes to see him; he gives him the same sort of medicine; it does him no good, he grows worse; gives him more, but he gets worse all the time till he dies. Now that man's time to die had come, and all the doctors in the world can't cure him.

"One year I work in the corn-field, plough deep, dig up grass, and make nothing but nubbins. Next year I work the same way; the rain and dew comes, and I make a good crop.

"I have been here going hard upon fifty years. Every day since I have been in this world I see the sun rise in the east and set in the west. The north star stands where it did the first time I ever saw it; the seven stars and Job's coffin keep on the same path in the sky, and never turn out. It ain't so with man's works. He makes clocks and watches; they may run well for a while, but they get out of fix, and stand stock still. But the sun and moon and stars keep on the same way all the while. There is a power which makes one man die, and another get well; that sends the rain, and keeps everything in motion."

What a beautiful comment is here furnished by an unlettered African on the language of the psalmist: "The heavens declare the glory of God, and the firmament showeth his handiwork. Day unto day uttereth speech, and night unto night showeth knowledge."

A CURIOUS EXPERIMENT.—Take a piece of pasteboard, about five inches square, roll it into a tube with one end just large enough to fit round the eye, and the other end rather smaller. Hold the tube between the thumb and finger of the right hand (*do* not grasp it with the whole hand); put the large end close against the right eye, and with the left hand hold a book against the side of the tube. Be sure and keep both eyes open, and there will appear to be a hole through the book, and objects seem as if through the hole instead of through the tube. The right eye sees through the tube, and the left eye sees the book, and the two appearances are so confounded together that they cannot be separated. The left hand can be held against the tube instead of a book, and the hole will seem to be seen through the hand. *Mark Lane Express.*

Advertisements.

MONTREAL VETERINARY SCHOOL

IN CONNECTION WITH MEDICAL FACULTY OF

McGILL UNIVERSITY,

UNDER THE PATRONAGE OF

THE BOARD OF AGRICULTURE,

PROVINCE OF QUEBEC.

(ESTABLISHED 1866.)

CLASSES.	LECTURERS.
Anatomy of Domestic Animals, Botany	D. McEACHRAN, M.R.C.V.S.
Institutes of Medicine (Physiology and Histology,)	PRINCIPAL DAWSON, PROF. FRASER.
Chemistry (Theoretical and Practical,)	PROF. CRAIK.
Veterinary Medicine and Surgery,	D. McEACHRAN, M.R.C.V.S.

Practical instructions daily. Dissection during the Session. Lectures commence 12th November.

☞ For Particulars apply to GEO. LECLERC, Esq., SEC. BD. OF AGRICULTURE.

Or to D. McEACHRAN, V.S., 697 CRAIG ST., MONTREAL.

v5-18-4t.

THE BRIGHTEST

ITALIAN QUEENS

IN AMERICA.

HAVING IMPORTED three extra fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale. Price as usual, $5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. B. hive $18—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS,
APIARIAN,
Brooklin, Ontario.

Aug. 1, 1868, v5-16-tf

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING RULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper.

Port Perry, March 28, 1868. PAXTON, TATE & CO. v5-7-tf

SHORT-HORNED CATTLE

AND

IMPROVED FARM STOCK.

MR. THORNTON, having lived ten years with Mr. Strafford, editor of "Coates' Herd Book," is prepared to buy and ship SHORT-HORNS, or any kind of pure bred farm stock, supply information regarding them, or execute commissions in the old country.

"The Circular," a record of Short-Horn transactions in England, and list of animals for private sale, published at intervals. Price $6 annually. Post free.

JOHN THORNTON,
15 Langham Place,
v5-18-4t-e.o.t. London, England.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.
v5-14-tf

THE "DEXTER CIRCULAR," after six months' trial, is pronounced the most wonderfully quick method ever discovered to make any untrained horse or colt trot fast without the use of a track. One boy made $900 on two common colts; $1,200 on another. Price $1. Address, GEO. A. ATKINS, 2 Dey St., N. Y.

P. S.—"We recommend every farmer's immediate attention to this circular." J. W. Forman, Troy Mills, Iowa; O. J. Brance, Egremont, Mass; Charles Palmer, Hillsdale, N. Y.; John Gildersleeve, Amsterdam, N. Y.; Russel Tremain, Postmaster, Green River, N. Y., and a hundred others. v5-18-4t.

TO INTENDING BEE-KEEPERS.

A few Stocks of Bees, this year's increase of the

EDITORIAL APIARY,

are for Sale on the following terms:

ITALIANS IN THE THOMAS' HIVE, WITH RIGHT,			$18.00
HYBRIDS	Do.	Do.	$12.00
COMMON BEES	Do.	Do.	$10.00

The above prices are for single-boarded hives; double-boarded ones will be charged $1.00 extra. Bees packed and shipped on G. T. R. or G. W. R. to any point desired.

Orders accompanied with the money, to be addressed

REV. W. F CLARKE,
Editor CANADA FARMER,
v5-19. GUELPH.

THE AMERICAN ENTOMOLOGIST.

THE AMERICAN ENTOMOLOGIST, edited by Benj. D. Walsh and C. V. Riley, State Entomologists respectively of Illinois and Missouri, and copiously illustrated, treats of all kinds of Noxious and Beneficial Insects. It will be found invaluable to every Farmer, Gardener and Fruit-grower, and to every one taking an interest in the fascinating study of Entomology. Terms, $1.00 per annum. The first number will appear September 1st. Sample copies and prospectus sent on application. Send in your subscriptions to

v5-10-1t. R. P. STUDLEY & CO., Publishers, St. Louis, Mo.

GREAT SALE!

OF

THOROUGH-BRED STOCK,

SHORT-HORN CATTLE,

Leicester, Cotswold & Southdown Sheep,

AND IMPROVED BERKSHIRE HOGS,

BY

PUBLIC AUCTION,

At the subscriber's farm, 4 miles from Brampton Station, G. T. R., 20 miles west of Toronto,

On Wednesday, 28th October, 1868.

12 Short Horn Cows and Heifers, 5 Short Horn Bull Calves, by Duke of Bourbon; 20 Leicester Ewes, from 1 to 3 years old, bred to first class Rams; 12 Leicester Ewe Lambs; 4 Leicester Rams, 12 Cotswold Ewes from 1 to 3 years old, bred to first class Rams; 10 Cotswold Ewe Lambs, 8 Cotswold Rams, 12 Southdown Ewes, 6 Southdown Rams; a number of improved Berkshire Hogs. On account of being overstocked, and the failure of the root crop, the above stock must be sold. Catalogues with full pedigrees sent on application.

Terms:—$30 and under, Cash; over that amount, 12 months' credit on approved notes, or discount of 7 per cent. allowed for cash.

JOHN SNELL,
Edmonton P.O., Ont.

Edmonton, 5th Oct., 1868. v 5-20-1t.

ONTARIO
VETERINARY SCHOOL,

IN CONNECTION WITH THE

Board of Agriculture, Toronto, Ont.

Established.....1862.

PROFESSORS:

Andrew Smith, V.S., Edin.—Anatomy and Diseases of Farm Animals.

J. Thorburn, M.D., Edin.—Veterinary Materia Medica.

James Bovell, M.D., L.R.C.P., Eng.—Animal Physiology.

Geo. Buckland, Professor of Agriculture, University College—The History, Breeding and Management of the Domesticated Animals.

A. Smith, V.S. and Assistant—Clinical Instruction.

Will re-open for Second and Third Year's Students on WEDNESDAY, the 11th day of NOVEMBER, and the session for First Year's Students will commence on JANUARY 6th, 1869.

For particulars, apply to the Principal, A. SMITH, Veterinary Surgeon, Temperance Street.

Toronto, Oct. 15, 1868. v5-20—1t

100 FARMERS,

Or Farmers' Sons, can secure employment, paying from $100 to $150 per month, from now until next Spring.

Address at once, ZEIGLER, McCURDY & CO.,

Philadelphia, Pa., or Chicago, Ill. v5-20-2t*

PRIZE POULTRY.

FOR SALE a Cockerel and Two Pullets, Partridge Cochin, and Two pairs Game Bantams—just imported, and of the best strains in England.

v5-20-1t. Address, Box 63, P. O., St. Catharines.

HOUDAN FOWLS FOR SALE.

THE OWNER intends to keep only dark Brahmas. A pair imported from Ireland last June, price $15. Chickens from the above, $5 and $10 per pair. Please apply by letter to

MRS. CAPT. VARLEY,

v5-20-1t* Brockton, Toronto.

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

JAMES W. MANN,

v4-20-tf Port Dover, Ont.

Markets.

Toronto Markets.

Canada "Farmer" Office, Oct. 13th, 1868.

FLOUR AND MEAL.

Flour.—The market is unchanged. No. 1 super. has been offering at $5 15, and a sale of 100 bbls. was made on Change at that figure. The demand was limited, and there was not much desire to buy. 100 bbls. "Golden Drop" sold at $5 50. In extra and superior there is nothing whatever doing. Extra would not bring over $6. Business is entirely confined to retail lots.

GRAIN.

Wheat—The market for spring continues very dull. A car lot sold to-day at $1 14 f. o. b. There is, however, only a very limited demand at that price, and to effect sales of lots a reduction in price would have to be made. On the street market Midge-proof and Spring sold at $1 13 to $1 18. Fall wheat was offering freely, and as holders reduced their views, some sales were made. A car lot sold at $1 30; 1 car at $1 29 f. o. b.; 1 car inferior at $1 25, delivered; and 1 car very choice at $1 36, delivered. On the street market white Scules' is selling at from $1 30 to $1 35, and Red Winter at from $1 13 to $1 16.

Oats—There has been nothing doing to-day in car lots. Prices remain nominally unchanged at 46c. to 48c. On the street market a few loads sold at from 48c. to 50c.

Barley—The market was excited and higher; a considerable quantity in cargo lots changed hands during the past few days at advanced prices. The market has been completely "cornered;" almost all the lots in the market are now held by one firm. Large lots are now held firmly at $1 50, and several sales have been made at that price. The receipts on the street market continue very light; street prices have advanced; $1 44 was paid in the afternoon for the few loads coming in.

Peas.—There is no change in the market. We heard of no sales of car lots. There are buyers at 90c f. o. b. On the street market 92 cents were paid.

HAY AND STRAW.

The market has been fairly supplied. Hay has been selling at from $12 to $15, and straw at from $7 to $10.

PROVISIONS.

Pork—Unchanged; only a few lots on the market, which are held at from $25 50 to $26.

Butter—As is usual on Mondays, there was not much doing to-day in this article. Prices remain unchanged. Ordinary store packed is selling at from 17c. to 20c.; fair to good lots would bring 21c; and straight dairy 21½c. to 22c.

Eggs—There has not been much doing to-day. We heard of no large sales. Round lots are worth from 15c. to 16c.

Cheese—Unchanged. We heard of no lots selling to-day. Factory is held at from 10½c. to 11½c.

Dressed Hogs—Very few coming in to-day, this being Monday. The very best hogs sell to retailers at from $6 75c. to $7. Ordinary for packing purposes bring from $5 to $6 50c.

Hops—Stocks are increasing. There is, however, only a limited business doing. Good to extra per pound are held at from 15c. to 20c; fair to good at from 10c. to 15c.; old will not bring over 5c. to 10c.

Potatoes—Only a few loads were offering to-day. Prices are unchanged, namely, 75c. to 80c. per bushel.

Apples—In fair supply. Selling freely at from $1 60c. to $1 75c. per barrel.

Hides and Skins, per lb.—*Hides*, green, rough, per lb., 5½c.; do. green, inspected, 7c.; do. cured and inspected, 7½c. to 8½c. *Calfskins*, green, 10c.; cured, 12c.; dry, 18c. to 20c. *Lambskins*, green, 45c. to 50c. *Sheepskins*, 60c.

Guelph Markets, Oct. 12.—Fall Wheat, per bushel, $1 18 to $1 20; spring wheat, $1 00 to $1 05; oats, 48c. to 55c.; barley $1 35c. to $1 40c.; peas, 60c. to 65c; wool, 28c.; hay per ton, $10 to $12; straw per load, $3; turnips per bushel, 15c. to 20c.; butter, per lb., 18c. to 20c.; Apples, per bag, $1.

London Markets, Oct. 12.—Red Fall Wheat per bushel, $1 04 to $1 06; white wheat, $1 12 to $1 15; spring wheat, $1 05; barley, $1 27 to $1 37; peas, 60c. to 62c.; oats, 40c. to 42c.; corn, 80c. to 90c.; Buckwheat, 50c. to 60c.; rye, 55c. to 60c.

Montreal Markets.—Oct. 12.—*Flour*—Superfine Extra, $7 to $7 15c.; Extra, $6 50c. to $6 80c.; Fancy, $6 60c. to $6 90c.; Welland Canal Superfine, $5 30c.; Superfine No. 1 Canada Wheat, $3 30c. to $5 45c.; No. 1 Western Wheat, $5 30c.; No. 2 do, $4 80c. to $5.; Fine $4 30c. to $4 40c.; Middlings $3 90c. to $4; Pollards $2 90c. to $3. *Bag Flour*—$2 60c. to $2 60c. *Wheat*—Canada Fall, $1 30c; Spring $1 22½c.; Western $1 15c. to $1 20c. *Oats*—Per 32 lbs. 47c. to 48c. *Barley*.—Per 48 lbs. $1 30c. to $1 35c. *Butter*—Dairy, 21c. to 23c.; Store-packed, 20c. to 21c. *Cheese*—Factory, 10c. to 11c.; Dairy, 9c. to 10c. *Eggs*—16c. to 17c. *Ashes*—Pots, $6 65c. to $6 75c.; Pearls, $6 65c. to $6 60c. *Pork*—Mess, $24 25c. to $24 50c.; Thin Mess, $23; Primo, $17 to $17 50c. *Lard*—16c. to 17c. *Peas*—$1 05c. to $1 06c. *Rye Flour*—4 30c. *Oatmeal*—$6 40c. *Cornmeal*—$4 to $4 10c.

Chicago Markets, Oct. 13, noon.—William Young & Co.'s report.—Wheat—Receipts, 130,000 bushels; shipments, 93,000; No. 2, irregular at $1 38. Corn dull at 95½c.; receipts, 62,000 bush.; shipments, none. Pork firm at $20.

New York Produce Market.—*Flour*—Dull. Receipts 25,600 barrels; sales 6,100 barrels at $6 75c. to $7 15c. for superior State and Western; $7 50c. to $8 10c. for common to choice extra Western. *Rye Flour*—quiet at $6 to $8 50. *Wheat*—Dull, and 1c. to 2c. lower; receipts, 165,000 bushels; sales 48,000 bushels at $1 60c. to $1 65c. for No. 2 spring; $1 77½c. for No. 1 do; $1 79½c. for amber Green Bay; $2 57c. for white California; $2 40c. to $2 60c. for white Michigan. *Rye*—quiet. Receipts 7,400 bushels. *Corn*—Opened firm and closed dull. Receipts 313,000 bushels; sales 76,000 bushels, at $1 17c. to $1 19c. for unsound; $1 19c. to $1 20c. for sound mixed Western. *Barley*—Scarce. Receipts 65,000 bushels; sales 9,500 bushels Canada West at $2 35.

Milwaukee Markets.—Oct. 13, noon.—Wm. Young & Co.'s report.—Wheat—Receipts, 106,000 bushels; shipments, 81,000; No. 1, irregular at $1 43½ to $1 49; No. 2, do. $1 38. Flour dull and unchanged. Pork firm at $20 75c. Freights nominal.

Contents of this Number.

	Page
THE FIELD:	
Thistle Seedlings—(with cut)	305
The Wheat Crops of East Lothian	305
Farm Weights and Measures	306
Rust in Wheat	307
Salt for Crops	307
A Large Yield	307
Improvement of Worn-out Lands with Grass and Clover	307
STOCK DEPARTMENT:	
Digestion	308
Sheep Farming in Turkey	308
Feeding Trough for Pigs or Sheep—(with cut)	308
To Manage a Rearing Horse	308
Acclimation in Australia	308
Fowls in the Horse Stable	308
VETERINARY DEPARTMENT:	
The Drugging of Farm Horses	309
Open Synovial Cavities	309
Ring-bone	309
THE DAIRY:	
Philadelphia Butter	310
Selling Milch Cows	310
POULTRY YARD:	
Standard of Excellence in Exhibition Poultry	310
The Wild Turkey	310
THE APIARY:	
Will Bees Build Straight Combs in a Frame Hive?	311
Securing Combs in Movable Frames	311
CORRESPONDENCE:	
Social Disadvantages of Farm Life	312
EDITORIAL:	
The Western Fair	312
New York State Fair	313
Toronto Veterinary School	314
Fall Shows	315
Stock Sale	315
Russell County Agricultural Exhibition	315
The American Entomologist	315
AGRICULTURAL INTELLIGENCE:	
Meeting at Rochester—Cattle Disease	316
Immigration Returns	315
Brief Items—Large Farms; Peppermint Culture; Wintering Cattle in Quebec; Crops in Great Britain; United States Hay in Great Britain; Short-Horn Sales	315
ENTOMOLOGY:	
A Man-Slaying Caterpillar	316
The Crecopia Emperor Moth—(with illustration)	313
The Beech Aphis	316
Notes on a New Grape Insect	316
HORTICULTURE:	
Fruit Growers' Association—The President's Address	317
Russian Horticulture	318
THE HOUSEHOLD:	
The Ladies and the Canada Farmer	318
Rats	318
MISCELLANEOUS:	
The Use and Care of Edge Tools	319
A Curious Experiment	319

The Canada Farmer is printed and published on the 1st and 15th of every month, by the Globe Printing Company, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed:

☞ Subscription Price $1 per annum, (Postage Free,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

Clubs will be furnished at the following rates:—

Ten Copies for.....Nine Dollars.
Twenty Copies for.....Sixteen Dollars.
Forty Copies for.....Thirty Dollars.
One Hundred Copies for.....Seventy Dollars.

To Agricultural Societies ordering more than 126 copies, The Farmer will be sent at Sixty Cents.

The Canada Farmer presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

The Month.

OVEMBER is a month of very uncertain character in this climate. It is hard to say how it will behave. Sometimes it begins with a rough cold snap that startles us into a conviction that winter does really mean to come again, and, as if to make amends for its rough behaviour at the outset, closes with that delightful reminder of a departed season which we call "Indian Summer." Or this order is reversed, in which case summer in pretence begins the month, and winter in earnest closes it. The well-known March proverb is not inapplicable to November. If it come in like a lamb it will go out like a lion, and *vice versa*.

The mean temperatures for this month are as follows:—

Stratford	36° 75'
Hamilton	39° 75'
Barrie	37° 99'
Toronto	38° 35'
Belleville	38° 82'
Montreal	34° 75'
Quebec	35° 50'
St. John, N.B.	37° 40'
Halifax	38° 00'

"Preparation for winter" may be written as the motto and watchword for November. It is to be presumed that the potatoes are all dug and housed either in cellars or pits. We are liable to have frosts about the first of November, severe enough to do great damage to potatoes. If any are left in the ground at so late a date as this, by all means let them be got out of it forthwith, if Jack Frost is not playing jailer with them.

All the root crops should be taken care of at once: carrots, beets, mangolds, and turnips. Carrots are beginning to be raised more extensively, chiefly as winter food for horses, and they are very valuable for this purpose. But they are equally good for other animals. Boiled and mixed with meal they are excellent for fattening hogs. Mangolds may be alternated with turnips in feeding cattle. Thus used for milch cows, they correct the turnipy flavour which is apt to be given to the milk by the exclusive use of turnips. But mangolds are especially useful toward the close of winter, and by their peculiar qualities, are an excellent preparation for turning out to grass. In taking up turnips, the best plan is to remove the tops before lifting the roots. This can be done most expeditiously by means of a sharp hoe. Care must be had not to cut a slice off the turnip along with the top. The tops may either be fed to cattle or ploughed in. We prefer the latter course, chiefly because the tops are a rather too unsubstantial and loosening diet to be a good preparation for winter, while they are an excellent green manure. Some farmers are in the habit of tearing their turnips out of the ground with harrows. We do not commend this practice. It cuts up and wounds the bulbs considerably. A light tool, somewhat like a pick, made for the purpose, does the work much more satisfactorily, and the process is not so slow as might be imagined. One of the best farmers we know, who usually raises about twenty acres of turnips each year, pursues this plan in preference to all others. The most convenient way of storing them for the winter is in a root-house close to the cattle stabling, but they will keep well in pits. Care must be taken to provide ventilation, and to avoid the extremes of warmth and cold. Turnips keep best just above the freezing point.

All animals should be well housed this month. Nothing is more unprofitable than to let stock suffer inconvenience from the cold. It is a great waste of feed, for shivering animals eat voraciously, and after all their food does them far less good than if they were kept comfortable. It is especially bad policy to let young stock suffer exposure. Keep them warm and they will improve in flesh, appearance and constitution. No prize animal was ever produced by being treated to a straw stack for both shelter and food. Colts will show the effect of care and good stabling more decidedly perhaps than any other description of young stock. It is a total mistake to suppose that exposure makes them hardy. Shelter, good food, ventilation and exercise, are what impart toughness of muscle and power of endurance. Fattening hogs should be well housed in good season, and got ready for market by settled cold weather. Better prices usually prevail early in the season, before the market is glutted with pork. Poultry intended for the table or market should be cooped, and fed with scalded meal, and the like. The addition of a little suet will hasten the fattening process; especially in the case of geese and ducks. The practice of converting poultry into food without preliminary fattening is to be reprehended quite as much as the practice of slaughtering lean beef, mutton or pork.

Manure-making is an important November job Collect stores of muck, leaves, dry tan bark, sawdust, and any sort of litter that can be used as an absorbent, that all the droppings, both liquid and solid, may be secured. "Waste not, want not." The yards should be cleaned now and then, the manure thrown up loosely into heaps, and coated with muck or soil. The value of manure depends largely on the food eaten by the animals; the richer the food the better the manure. A large proportion of the food of well-fed animals finds its way into the manure, and hence that made from fattening animals is of the greatest value. Hogs are the best fed of any animals on the farm, and next to night soil, hog manure is the richest of fertilizers.

Until frost comes, the plough should be kept going upon land meant for spring crops. All soils are benefited by exposure to the action of frost in a loose condition, clay soils particularly. Many a tough, unpromising soil in the fall, has become loose, friable, and pleasant to work by spring, under the influence of alternate freezing and thawing.

It has been well observed that "there may be great slaughter of biennial weeds this month with a 'spud.' Every coarse-leafed flat-growing plant in the meadows and pastures (and many that have fine leaves in close bunches), and green at this time, are plants that make root one year and bloom the next. Cutting an inch or two below the surface is fatal to most of them, and damaging to all."

Orchard and garden work the present month also comes principally under the head of preparation for winter. Some recommend planting fruit trees as late in the season as it can be done without danger from a too cold and frosty air, which is apt to injure the roots. We prefer to heel in the trees now, and wait for a favourable time to plant in early spring. The orchard may be top-dressed with manure to advantage the present month. Some are absurd enough to expect continuous crops of fruit without enriching the ground in which the trees grow; but fruit is like everything else, it must be cultivated and manured if it is to yield satisfactorily. Where field mice abound, it is necessary to bank up young fruit trees with soil ten or twelve inches high, making the surface firm and smooth, to prevent them from girdling the trees—a favourite trick with them. It is well to spade or plough gardens late in the fall. Some recommend pruning grape vines before winter sets in, others advise delay until just before the sap begins to flow in early spring. Grapes and raspberries are best laid prostrate, and even covered with an inch or two of soil before winter. A loose covering of cornstalks, straw, litter, or leaves, is advisable in the case of strawberry beds. Tender bulbs should be lifted and put in the cellar, if that has not already been done. In short, everything animal or vegetable, that requires winter quarters, must without further delay go into them.

The Field.

Storing Roots.

A few words on the subject of storing roots, in addition to the hints already given in the article on the month, may not be unacceptable to young Canadian farmers. With regard to the modes of harvesting the various root crops, it is not always possible, for want of sufficient help, to do this in the best manner. The necessity of using the most expeditious means is sometimes more pressing than the desirableness of employing the most approved plan. Pulling by hand, topping, and tailing, are no doubt the cleanest and altogether thriftiest processes; but with a number of acres to gather and a very few hands to do the work in but a short time, this tidy method is not always practicable. The implement adverted to in the foregoing article, will be found to effect a great saving of time in harvesting turnips. If the work is still more pressing, it may be expeditiously and not badly done with a plough. It is sometimes necessary to use the harrow; but these rough methods are objectionable, as they tend to wound and bruise the roots, and so render them more liable to decay. The less they are knocked about the better.

It is the practice with some good farmers to pile the turnips in heaps in the field, and cover them over with leaves, and let them remain for some days to "sweat" before hauling them to the root-house or pit. It is contended that the after heating in the bulk is thereby diminished.

The root-house is no doubt the most convenient receptacle for storing roots. It should be located near the stables, so as to diminish as much as possible the labours of carrying food to the animals during the winter. Experience will soon teach the farmer the importance of attending to these apparently trifling details. A few minutes saved in operations that recur frequently during each day, will amount in the aggregate to a very considerable item. It is not well, however, to build root-houses under the main portion of barns; for the steam and moisture from turnips especially, will speedily rot the timbers in the roof of the apartment in which they are stored; and when these support the floor of the barn or stables above, they have soon to be replaced, and perhaps at considerable inconvenience and outlay.

Great attention should be paid to thorough ventilation, a moderately cool temperature should be secured, and free egress allowed for the steam and vapor to escape. Generally speaking, the door and other apertures of a root-house where turnips are stored should be kept open during a large portion of the time till Christmas or thereabouts; and even afterwards, whenever there is any considerable rise in temperature, the access of external air and a thorough draught should be permitted, due caution, of course, being exercised to guard against freezing. Potatoes are not so liable to heat as turnips, nor indeed are mangolds; and both these roots, mangolds and potatoes, are more delicate, more liable to be injured by frost than turnips. Some practical inconvenience therefore occasionally arises from storing the different kinds of roots together. This may be partly guarded against by partitions in the root-house, and by setting apart the warmest portions of the space for the more tender roots.

Where the farmer has not the convenience of a suitable building, or where such accommodation is insufficient for the whole crop, roots may be kept with perfect safety in well-constructed pits. These need be but little dug below the surface; though sometimes they are stored in pretty deep trenches. We prefer a shallow excavation, such as can be made by loosening the soil with a plough, and using a shovel afterwards. A slope of ground should be selected to facilitate drainage, and the length of the pit should correspond to the inclination of the ground. Regard must, however, be had to the aspect. It is not well to have one side facing south and the other north. One will have the full force of the sun, and the other always the shadow, and exposed to the keenest winds, would be doubly cold. The floor of the pit should be so graded that no water can lodge in it, and trenches should surround it outside in such a way as to carry off all melting snow or rain-fall.

The inexperienced are sometimes apt to make these pits too wide, by which the danger of heating is greatly increased. Five or six feet is quite wide enough. The length is a matter of less consequence. The turnips should be piled up to a ridge. If boards are handy they will be found serviceable to place next the roots, in such a way as to prevent the dirt falling in when the roots are removed from beneath. A good covering of straw should next be packed evenly over the whole. Use plenty of straw. Then cover all with a coat of soil well pressed and beaten down. A thorough ventilation should be secured by chimneys near each end and at regular distances between. These pipes can be conveniently made out of inch fence boards, six inches and four inches wide. Two opposite sides should be about six inches longer than the others, and over the longer a short board can be nailed. This will cover in the top and keep out rain and snow, while a sufficient opening will be left at the sides for ventilation. Sometimes it is desirable at first to leave the ends of the pits open for a time to keep down the temperature, and allow a readier escape of vapor. After a while more earth should be piled on, and before the winter fairly sets in, a pretty thick coating of earth should be packed upon the straw. Some persons are afraid of covering too deeply for fear of keeping the turnips too warm, but there will be no fear of this if due attention is paid to the ventilation. Potatoes require a warmer covering and less ventilation than other roots, and should, if possible, be stored away dry. In very cold weather, all openings should be stopped up with straw, which may be removed again when the weather moderates.

Experiments in Wheat Culture.—Drilling and Horse-Hoeing.

The Secretary of the Goodhue Farmers' Club, of Minnesota, communicates to the *American Agriculturist* the following interesting statement in regard to some experiments in wheat culture, made by one of the members of the club.

Field No. 1.—Two bushels to the acre was sown with the broadcast sower and cultivator combined, and the seed was planted at all depths, from the surface to three or four inches deep.

Field No. 2.—Was sown with a common wheat drill, east and west, one and a quarter bushels being used to the acre, planted about two and a half inches deep.

Field No. 3.—Three pecks of seed were drilled in, east and west, two and a half inches deep, and eighteen inches apart. It was cultivated but once, when about a foot high, with a five-toothed walking cultivator, at an expense of $1 per acre.

The results are thus stated: "No. 1 was good wheat, not damaged by heat, head medium in length, well filled, stood thick upon the ground. Was unequal, some straws five and six feet in length, and some only two feet. Some heads were very green, while others were ripe. The yield is estimated at from twenty to twenty-five bushels per acre. No. 2 was of a better color during growth than No. 1. Very even in straw and degree of ripeness. Heads about even, of extra length. Bundles very heavy, and the yield is estimated at thirty bushels per acre. No. 3 was extra at all times. Its unusual deep green colour and broad leaves attracted much attention. No one supposed it the same kind of grain as lots 1 and 2. It stooled out much more than either No. 1 or 2. It was uniform in length of straw and degree of ripeness. The heads would average one-third larger than No. 1, and the largest and heaviest wheat we ever saw. Strangers here picked for the smallest heads, and then shelled from sixty to eighty kernels from each head. Our binders, and we had some from other States who had had much experience, said they never saw such large heads or such heavy wheat of this kind, namely, China Tea. The yield is estimated at thirty-five or forty bushels per acre."

The Club arrives at the conclusion that they have been in the habit of using too much seed for spring wheat; that wheat needs cultivating; that if half a bushel of seed were used per acre, and sowed in drills fifteen inches apart, and thoroughly cultivated, the average crop of Wisconsin might be doubled. They recommend, moreover, the expenditure of the price of the seed saved in giving the land a more thorough harrowing. In this they are wise; there is nothing to which wheat so quickly responds as thorough tillage, and it may be a question whether this should be done previous to sowing or after the grain is up. There are other interesting subjects for investigation before any one can speak with authority. The exact amount of seed per acre, though depending in a measure upon the kind of wheat and the character of the soil, may be nearly approximated. The distance apart of the drills is another subject for experiment; twenty inches has been recommended. It is difficult to cultivate between those which are much nearer, and no doubt the roots will fill the ground between them at this distance.

The Product of one Weed.

Desiring to know what might be the influence of a single weed upon the agriculture of a field or garden, I selected a plant of purslane (pusley or parsley, as called by some), and carefully counted its number of pods. It was a large, but not the largest sized plant, from a rich spot of ground. The number of its seed pods was 4,613. I then took fourteen of the pods, seven small ones, four medium, and three of the largest, and counted the seed in them. The result gave me as an *average* ninety seeds to the pod. Thus in this single plant we have the enormous number of 415,170 seeds. If these were spread over a plot of ground and should all germinate, and a man should attempt to cut them with a hoe, and should average six plants at every blow, and make thirty strokes of his hoe per minute, it would take him thirty-eight hours and twenty-three minutes to cut them out. Or, if these seeds were equally disseminated at the rate of four to the square foot, they would cover over two and a third acres of ground. Again, allowing only one-third of these seeds to germinate, and that the product shall only be one-half as rich in seed as this plant, yet they will produce the astonishing number of 28,727,688,150 seeds, enough to cover broad fields with weeds the third year, from one seed. Do not these figures show the immense importance of cutting and destroying every weed before it goes to seed? There is no doubt that many other weeds are as fully or more prolific than this. The purslane is a difficult weed to kill. I have known it in wet weather to grow and mature its seed long after it had been entirely severed from the root.—*Cor. Journal of Agriculture.*

Utilization of Sewage.—Our English exchanges give interesting accounts of the very satisfactory experiments made in the neighbourhood of London, on the Lodge farm, to test the fertilizing power of the sewage of the city. A company was formed some time ago to reclaim some of the poor, waste land in the County of Essex, by means of the sewage of the metropolis, and it is from the last yearly report of this company that the following results are given. One-fourth of the acreage under cultivation raised rye-grass, for which there is a greater demand than can be met. As a proof of the fattening power of sewage-grown grass, it is stated that two young steers fed exclusively on it had, from the 18th of May to the 7th of August, gained weight to the following extent: one, 1¾ cwt., and the other 2 cwt. Land of the poorest and most sterile description, with no other manure than sewage, is found to yield prolific crops, not only of grass, but of wheat, rye, mangold, cabbage, turnips, potatoes, &c. By this means six or seven crops of grass are raised in a season, each very heavy. With two dressings or floodings of sewage, a crop of mangold of fifty or sixty tons per acre has been produced where not more than twenty or twenty-five could be had when farm-yard dung was used for manure. In the same way, without this manure, the crop of wheat was about twenty-eight bushels per acre; with it, something like forty-four. Could we not also utilize the waste of our cities?

The Uses of Clover.

It would be very difficult to over-estimate the importance of this crop to all farmers engaged in mixed husbandry. Its introduction into England produced an entire revolution in the Agriculture of that country. Clover laid the foundation of all those wise systems of rotation that have since made the Agriculture of England a model, and a marvel to the world. Nor is its importance much less in those sections of America where its values are appreciated and rightly applied,

Clover is valuable:

1. As a forage plant.
2. As a fertilizer.

As a forage crop, its special value is in the quantity and quality of the hay that it produces, and the rapidity with which it comes to maturity after being sown. Clover properly cured, is almost equal to good Timothy, for beef cattle, and much superior to all other hay, for milch stock. In pasture, the same relative values hold with the addition that, for hogs, clover is a grand specific, superior, perhaps, to all other grasses.

The specific value of Clover, however, lies in its wonderful powers as a fertilizer. In this respect it is unequaled by any crop grown on the farm. The different ways in which it adds to the fertility of land are chiefly:

1*st. Shading the surface of the soil.* Owing to its rapid and luxuriant growth it soon forms a close and heavy covering over the soil, that acts as a mulch in protecting it from the scorching rays of the summer sun. At the same time that the soil is protected the weeds are smothered out, and the land cleaned up.

2*nd. By aerifying and disintegrating the soil.* Clover possesses peculiarly long and powerful tap-roots, that penetrate deep, loosening the soil and admitting the air. Thus rapidly changing the physical condition not only of the soil, but of the subsoil also.

3*rd. By effecting important chemical changes, necessary to enrich the earth with plant food.* Its abundance of foliage enables Clover to gather from the atmosphere immense stores of gases that give life to the plants, which its far-reaching roots send deep down into the earth. Thus a clover field becomes, as it were, a great reservoir for plant food. And clover itself becomes a great commissary, collecting food from the earth and the air for whatever crop that may follow.

4*th. By preventing washing.* The Clover mulch breaks the force of the hard beating rains, while the roots hold the soil in a mat as it were, thus preventing it from washing

5*th. As a green manure.* Perhaps no crop is so valuable for turning under in a green stage, as Clover. In addition to the immense amount of rich vegetable matter in its abundant roots, the plant itself is extremely rich in all the materials necessary to the healthful growth of succeeding crops.—*Dixie Farmer.*

How to Use an Axe.

Mark Tapley, in his "Home in the wilderness," thus discourseth: "To use perfectly the American wedge-shaped axe (and here let me say that it is the only axe for felling timber and doing everything with which is worth one straw), requires no ordinary degree of skill and practice.

"Strength, of course, has something to do with it, still a man of only moderate muscular power would beat a giant into being ashamed of himself, if the weaker man did, and the stronger man did not, know how to wield an axe.

"The axe I prefer for all ordinary purposes ought to weigh about 8 lb., and it should be carefully mounted or 'hung,' as the term is, on a springy, rightly curved hickory handle. * * *

"Let us suppose you are going to fell your first tree: be careful to discover how the tree leans, and always choose that side towards which it inclines to begin on; by doing this you avoid the risk of falling the tree on yourself. Stand off from the trunk, so that the edge of your axe blade can touch the centre of it, whilst both your hands are grasping the handle before the knob at the end of it, purposely made to prevent it from slipping out of the grasp in the act of chopping.

"Fix your eye on a spot about three feet from the ground on the tree trunk, plant your feet firmly, look carefully behind you, to make sure that there are no small twigs or branches to intercept the axe; then holding the handle by the extreme end, not too firmly, or it will jar your wrists, and whirling the axe at arm's length round your head, bring it obliquely down upon the spot you have fixed your eye on. If you bring the edge down on the proper slant, the blade should be nearly buried in the bark and timber; if you do not it will 'glance,' and then look out for your legs. Repeat this cut if you can; an axe-man would, twice or three times following, in the same place. Should the tree be, for example, four feet in diameter, chopin the next cut you make three feet lower down than where you made the first cut, but, this time, horizontally, always bringing the axe round at arm's length. This will give you the 'right sized chip,' to use a lumberer's phrase, or, what he means, in other words, is, that the three-feet notch will enable the chopper to make the wedge end of the tree break in the centre of the stump; if you took a smaller notch, as nine out of ten inexperienced men would do, you would find your axe jammed before you could chop half way through the trunk; hence the length of the chop is always in proportion to the girth or diameter of the tree to be felled. Cut half way through the tree, always keeping the lower surface horizontal and smooth, as if planed; then change and begin on the opposite side to that on which you have been chopping, precisely in the same way as you began the other cut; when you are nearly through, the tree will crack off, and of course fall in the direction to which it leaned, that is, away from you."

The Early Rose Potato.

The following account of an experiment with the early Rose Potato corresponds in its general tenor with many other reports which we have seen, and which lead us to form a very favourable opinion of this new variety:—

"As the 'Early Rose' is now presenting itself to the agricultural public, and is receiving, as every new source of and claimed improvement should receive, a thorough test and trial of its merits, perhaps a few words in relation to my own personal experience with it the past season would not be amiss.

"Being attracted last winter by its presentation in the December number of '*The Practical Farmer*,' I was induced to purchase some of them at the enormous price of $3 per pound; and with one of these pounds I will state my treatment and success, deeming it might be interesting to some of your practical readers.

"The pound of potatoes contained nine tubers. Owing to the unfavourable spring, and not receiving them till late in the season, I did not succeed in planting them till May 26th. On the 20th I proceeded to cut them for planting; the eyes had started growth, by which I was enabled to cut them in single eye pieces. Some of the middle or large eye pieces I divided, making from the nine potatoes one hundred and six plants, all of which grew; they were planted without any extra preparation of the soil, the ground being manured, ploughed down, and marked out about four inches deep, and planted with phosphate in the row; kept the ground mellowed by frequent harrowing, and about blossoming time drew a little dirt towards the row. They occupied just one hundred feet of row.

"September 11th I proceeded to dig and weigh them, and from the one pound planted, I had just one hundred and one-half pounds of potatoes, and what was still better, ninety-three pounds of them were large merchantable potatoes, such as will bring the highest market price. Their shape accords very much with that of the *White Mercer*; their color a dull rose; inside, flesh pure white, and exceedingly starchy and fine. In short I consider them a great acquisition to the grower of potatoes and cultivator of the soil.—*Cor. of The Practical Farmer.*"

Advantages of Underdraining

Waring, in his "Elements of Agriculture," states that the advantages of underdraining are many and important, and enumerates the following:

1. It entirely prevents drought.
2. It furnishes an increased supply of atmospheric fertilizers.
3. It warms the lower portions of the soil.
4. It hastens the decomposition of roots and other organic matter.
5. It accelerates the disintegration of the mineral matters in the soil.
6. It causes a more even distribution of nutritious matters among those parts of soil traversed by roots.
7. It improves the mechanical texture of the soil.
8. It causes the poisonous excrementitious matter of plants to be carried out of the reach of their roots.
9. It prevents grasses from running out.
10. It enables us to deepen the surface soil.

By removing excesses of water—

11. It renders the soil earlier in the spring.
12. It prevents the throwing out of grain in winter.
13. It allows us to work sooner after rains.
14. It keeps off the effects of cold weather longer in the fall.
15. It prevents the formation of acetic and other organic acids which induce the growth of sorrel and similar weeds.

Splitting Rails.

Almost every farmer can split rails, but there is considerable science in the work after all. One man will rive them out with apparent ease, while another will tug away and exhaust his strength in a few hours. The reason of this difference is owing to the weight and shape of tools, and the knowledge of their use. One man makes a constant outlay of strength, while another will apply it only at an essential point, and that is when the beetle is descending and near the wedge.

An experienced rail-splitter tells us that the best maul is made of a knot, and should be of medium weight, not so heavy but that a man can swing it with ease. One iron wedge, quite slim, should be kept and used for starting the split; it is not apt to rebound, and if it should, it may be easily prevented by making a few checks with an axe near together, and starting the wedge between them, or by rubbing the wedge in dirt.

It is hard enough to split rails at the best, and we believe it a sin for any man to attempt the work without proper prerequisites, for he has no right to exhaust physical powers and ruin his constitution by using poor tools, when the best can be obtained at a trifling expense. Great advantage is gained, when making rails, by opening large logs with a charge of powder.—*Ohio Farmer.*

Destruction of Stumps.

We have always objected to the use of machinery of any sort to take up large stumps in ordinary arable land, that they would take up inevitably a large quantity of earth with each, and leave a hole almost as objectionable as the stump; and moreover, that after the stumps were out there was trouble in disposing of them. The following suggestions which we take from our neighbor, the *Baltimore Weekly Leader*, may be quite practicable, while they are not liable to the same objections. They are at least worthy of trial:—

"We have heard of two methods of getting rid of stumps, which, as they appear feasible and inexpensive, we hope some reader will try and report upon. Bore with a two inch auger to the heart of the stump; fill the cavity thus made with sulphuric acid, or with crude oil of petroleum. In the first case, the acid becomes the destructive agent within a few months; in the latter, when the stump becomes saturated with the oil, it is fired, and will then burn out to the last particle like a candle."—*The American Farmer.*

Bright Barley.—A correspondent from Wyoming Post Office, Plympton, asks "how the farmers around Toronto save and harvest their barley to get so bright a colour? The grain-buyers say our barley is plumper than that raised round Toronto, but deficient in colour." We do not know of any special method pursued by the farmers in the neighbourhood in gathering this crop. During the past season no particular care has been necessary; the dry weather, with all its disadvantages, has been favourable for harvesting. Perhaps the soil may make the difference referred to, if it really exists.

Norway Oats.—*L'Union des Cantons de l'Est*, published in Arthabaskaville, contained the following paragraph in its issue of the 8th ult., copied, apparently, from the *Pioneer*:—

"Mr. J. P. Lee, of Stanstead, sowed, last spring, 32 lbs. of Norway oats on a piece of ground measuring 100 perches, from which he harvested 1620 lbs., or 50 bushels. The husk is small, and the straw very superior to that of ordinary oats. The ears are 12 to 20 inches long—some of them yielding 226 grains,—and there were from 29 to 50 ears from a single grain. Mr. Lee believes he would have harvested double the quantity he had if the season had been favorable. A Mr. Price, of Vermont, is said to have harvested 100 bushels of this oats to the acre."

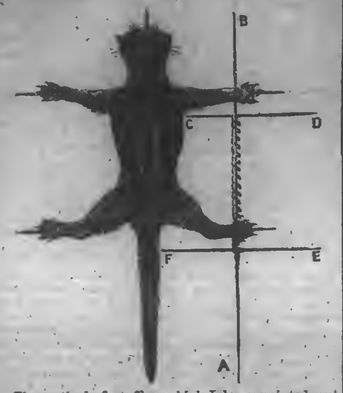
Go to Farming.—A good living is what comparatively few men succeed in making in village or city life, and yet nothing is more easy of accomplishment on the farm. Besides, there is a pleasure in cultivating and embellishing the earth, improving and increasing its products, and thus adding to the aggregate of human happiness. Why, then, should young men hesitate to be farmers? It is both profitable and honorable. It is the nearest approximation to independence that man as a member of society can make. A gentleman farmer—and all farmers are, or should be gentlemen—belongs to an order of nobility that is not indebted to placeholders for installation, and may, if he chooses, be ranked among the greatest benefactors of the human race. Let all the idle young men go to work on farms, and quit seeking third and fourth rate clerkships. In short, go to farming and quit begging.—*Ex.*

Canadian Natural History.

On Stuffing Quadrupeds.

To the Editor of THE CANADA FARMER:

SIR,—It will be remembered that in the number of your journal issued September 1st, I gave directions for skinning quadrupeds. I now propose to describe the method of stuffing them. Let us suppose the animal to be a cat. Take a central wire, which must be the length of the head, neck, body and tail of the cat, shown in the accompanying cut, that is, from A to B. Two other wires are then taken, and twisted round the centre piece in the manner represented in the cut, c. d. e. f., their extremities being left for the leg wires. After the wires are thus twisted together, the central wire is pulled out; and the feet wires of one side are pushed through the legs of one side from the inside of the skin, and the other two leg pieces are bent and also forced through the other legs, and then made straight by a pair of pincers. The centre piece, having been previously sharpened with a file, is now forced through the forehead and down the neck till it enters the centre of the twisted leg wires, in the position which it formerly occupied, and is then pushed forward to the extremity of the tail, leaving a small piece projecting out of the forehead, as represented in the cut; after which the completion of the stuffing is proceeded with. We will suppose the skull is now well rubbed with the arsenical soap, and all the cavities which the muscles before occupied are filled with chopped tow, flax or cotton, well mixed with preservative powder. The inner surface of the neck skin is now anointed and stuffed with chopped tow, taking care not to distend it too much. Nothing like pressure should be applied, as the fresh skin is susceptible of much expansion. Observe that it is always the inner surface which is anointed with the arsenical soap. And now having the neck stuffed, begin with the fore legs, and when they are both completed, stuff what will then be the under side of the centre wire; then form the breast, and continue stuffing the body until you come to the hind legs. Serve them the same as the fore legs. Observe that the wires in quadrupeds should be longer for the hind legs than for the front ones. Before finishing the body, stuff the tail; then finish the body, and anoint all the skin that can now be reached, and then with care sew up the skin, and if any hairs have been drawn in with the thread they must be picked out with a small awl. When this is completed, the hair will resume its natural order and completely conceal the seam. The articulations of the legs are then bent, and the animal placed on its feet. Pressure should now be applied over the places that are naturally flat, so as to make the other parts rise where the muscles are visible. A board is then prepared on which to place the cat. When you have decided on the position in which you intend to set your animal, bore four holes for the admission of the feet wires, which must be drawn through with a pair of pincers till the paws rest firmly on the board, and then twisted into a groove underneath the board, so that it will sit level. The stuffer next devotes his attention to the position and final stuffing of the head and neck.

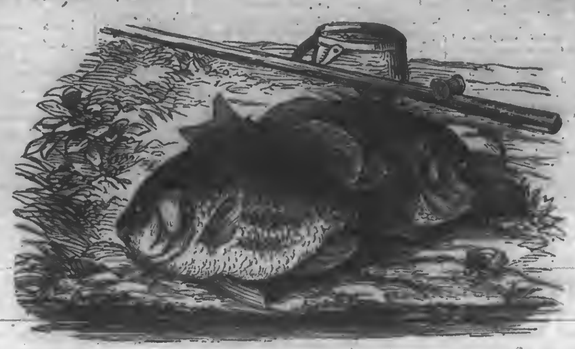


The method of stuffing which I have pointed out in the above is applicable to all animals, from a lion down to the smallest mouse. Animals of large description require a frame-work suited to their dimensions. These will be pointed out in their order.

A. B. B.

The muscles of the face must be imitated as correctly as possible by stuffing in cotton at the opening of the eyes, as also at the mouth, ears and nostrils. The next care is the insertion of the eyes, which must be done when the eyelids are yet fresh. Some dexterity and skill are required in this operation, and on it will depend most of the beauty and character of the head. The sockets of the eyes are supplied with a little cement, the eyes put in their place, and the eyelids properly drawn over the eyeballs; but if rage or fear are to be expressed, a considerable portion of the eyeballs must be exposed. Draw the lips together, plug up the nostrils with cotton, well tinctured with arsenical soap, to prevent moths from entering. The same precaution should be adopted with the ears, which with the cat require but little attention in setting.

☞ A canary bird, belonging to Miss Barber, of Windsor, Ontario, died August 30, at the remarkable age of fifteen years and two months.



Fresh Water Sun Fish.

Pomotis vulgaris.

THE common Pond Fish, or, as it is usually called in Canada, the little Sun Fish, is the last, least, and most numerous of the Perches that we propose to notice, having already described the more distinguished members of the same family, the various species of Bass. Our chief American piscatorial authority, Frank Forester, says of this small species, the subject of the accompanying illustration:—"This beautiful little fish has gained its provincial name from the extreme brilliancy of its colours when disporting itself in the sunshine. The numerous spots on its body have procured for it the absurd name of *Pumpkin Seed* in many States, and in Massachusetts it is known as *Bream*. It is valueless as an article of food, and equally so as a bait fish, its acute spines deterring any fish from seizing it. It is, however, a constant object of pursuit to boy and lady anglers.

It has very many varieties, and a wide geographical range, being found from lake Huron, through all the Eastern States, and along the Atlantic coast as far south as Carolina.

Its colour is greenish olive above, with irregular points of red and broader yellow or reddish brown spots disposed in very irregular lines. It is marked also with ranges of brighter spots on the bluish operculum, and on the hinder prolongation of the operculum, a black spot with a bright scarlet margin.

Its body is much compressed, very broad, oval. Scales large and even. Forehead sloping to the snout. Lateral line concurrent with the back. Eyes large, circular, near the facial outline. Nostrils double; mouth small, with very minute, thick-set teeth on the maxillaries, palatines, and vomer.

Its dorsal fin has ten spinous and twelve soft rays; pectorals, twelve soft; ventrals, one spine and five soft rays; anal, three spinous and five soft; caudal, seventeen soft rays.

There is another well-defined species, the Black-eared Pond-fish (*Pomolis appendix*), which is distinguished by a large lobe-like black prolongation of the upper posterior angle of the operculum.

TWO SERPENTS AND A CAT: A SINGULAR CASE.—The *Messenger Algerien* relates the following curious story:—"A very singular occurrence took place in the warehouse of the Messageries Impériales at Stora. A large case containing two serpents, directed from Batna to the superintendent of the Zoological Gardens in Marseilles, was deposited in the warehouse for shipment. Whilst there a cat, ignorant of what the case contained, got into it. No sooner had it done so than the reptiles sprang at it with the rapidity of an arrow, and squeezed it to death in their immense coils. They then relaxed their hold, and commenced the process of swallowing. The male serpent seized the dead cat by the head end, the female swallowing the tail end. It is well known that when serpents take into their mouth a substance of a certain size, the conformation of the teeth and jaws is such that they cannot let go their hold. In the present case both snakes were thus brought face to face, the process of deglutition was arrested, and it became doubtful how the matter would end. At length the female snake made a desperate effort to swallow the other, and in doing so was choked." In corroboration of the above facts the animals have been preserved in spirits of wine. The directors of the Zoological Garden of Marseilles are going to bring an action against the Messageries Company for the loss of the serpents, whilst the owner of the cat demands that its skin at least should be given up to him as a matter of curiosity.—*Zoologist.*

WILD DUCKS.—Since the rigid enforcement of the game laws, the inlets and marshes of Burlington Bay are swarming with wild ducks, and owners of private marsh property are encouraged to form preserves. The Hamilton *Times* says that Mr. Wm. Gage, whose locality is well known to sportsmen, on one of the inlets of the bay, has about 300 acres of marsh land bordering his farm, which he is about to convert into a tempting resort for game, by seeding down a considerable portion with the wild rice, having procured a supply of 600 lbs. at no small expense. The grain springs up from the water, and the heads have something of the appearance of oats, though much longer, the kernel being black in colour. It grows luxuriantly, and when once seeded, rapidly spreads over the adjacent marshes.

Stock Department.

The Winter Coat of Horses.

HAIRS and all strictly analogous formations are periodically produced, increase by continuous deposition of fresh matter at the base, and are at length shed, and replaced by a new, and precisely similar growth. When this happens simultaneously all over the skin, the whole coat is changed. The bird moults and comes forth with new and brilliant plumage, and the quadruped casts off its old covering, and acquires a new, fine and glossy garment. These changes are so timed, moreover, as to correspond to the varying temperature of the seasons. The fine short hairs, when first formed, composing a comparatively cool covering for the summer heat, become, by the advent of winter, when they have acquired their full length, a warm and sometimes a shaggy coat, well adapted to defend the body against the rigours of this period of the year. In the horse, and especially in those that are natives of such a climate as ours, this change in the coat is very marked. The increased warmth of the winter covering is ordinarily set off, as it were, by a less glossy appearance. This is partly obviated by the practice of blanketing, whereby the moisture of the skin and an abundant secretion of its natural oils are promoted. The extra artificial covering is also in most cases advantageous as a fit and grateful protection to the animal, in the peculiar circumstances attending domestication and the service of man, against the extreme severity of our winters. In this climate, and with such stables as are found in most farm steadings, the blanket is of essential service, if it is properly employed; but too often it is irregularly used, and serious mischief results. The blanket should not be used upon a horse at all in the winter, unless it is used faithfully. The great trouble in its use arises in this way: When a team has been driven a few miles to market, or the same distance for pleasure, blankets or robes are put on; but when drawing logs to the saw-mill, or doing other heavy work, they are made to haul large loads a mile or two, and return at a brisk trot, then stand unblanketed while another load is being put on. Or perhaps while driving upon the road—sleighing good, speed high—a friend is met and half an hour spent in talking; the horses cool suddenly, take cold, and the owner wonders how it happened. By such inconsiderate treatment more harm results in the use of the extra clothing than if it were omitted altogether. With due care, nevertheless, it is of essential service in the trying winters of Canada.

While the additional covering seems the consistent supplement of the warmer natural coat, it is somewhat strange that the practice of clipping or singeing the hair, before the advent of winter, so as to reduce the protection of the skin against the cold to its very minimum, should find many strenuous advocates. We do not think the custom adapted to this climate, though in the milder and moister atmosphere of England it may be really beneficial. The English hunter, and even, at times, the roadster, are called upon to make violent exertions, which will necessarily excite a profuse perspiration. If in this condition, with the natural thick winter coat of hair, the animal is brought into a warm stable, it will be a long time before the coat will become dry, and the horse is very apt to take cold, from long standing with a wet skin. The clipped coat obviates this danger, saves the groom a vast amount of trouble, gives the animal a degree of life and sprightliness very agreeable to the rider, and apparently exhilarating to the horse, for the same reason that a human being if turned out into the cold with scarcely any covering would be forced to "step lively", in order to keep up the circulation of the blood. To our taste, the practice even in England is no improvement as regards appearance; we prefer nature's finish to man's fantastic docking and shaping. But tastes differ, and fancy in horseflesh is not guided by artistic rules. In this climate, however, on the ground of the severe cold and the sudden and extreme changes of temperature, we cannot think the practice in question either safe or judicious.

PEDIGREE.	DAM.	Colour of Dam.	Breeder of Dam.
Dam	"Duchess 92,"	Red	Captain Gunter.
g. d.	"Duchess 84,"	Red and White.	Captain Gunter.
gr. g. d.	"Duchess 72,"	Roan	Captain Gunter.
gr. gr. g. d.	"Duchess 67,"	White	Earl Ducie.
gr. gr. gr. g. d.	"Duchess 59,"	Roan	Thos. Bates.
	"Duchess 50,"	Red and White.	Thos. Bates.
	"Duchess 51,"	Roan	Thos. Bates.
	"Duchess 41,"	Roan	Thos. Bates.
	"Duchess 32,"	Red and White.	Thos. Bates.
	"Duchess 19,"	Yellow Red	Thos. Bates.
	"Duchess 12,"	Red and White	Thos. Bates.
	"Duchess 4,"	Red and White.	Thos. Bates.
	"Duchess 1,"	Red and White.	Chas. Colling.

SIRE.	Sire's No.	Colour of Sire.	Breeder of Sire.
"4th Duke of Oxford,"	11337	Red and White.	Earl Ducie.
"Archduke,"	14099	Roan	Capt. Gunter.
"4th Duke of Oxford,"	11337	Red and White.	Earl Ducie.
"Usurer,"	9763	Roan	W. Hall.
"2nd Duke of Oxford,"	9015	Roan	Thos. Bates.
"2nd Duke of Northumberland,"	3646	Red and White.	Thos. Bates.
"Cleveland Lad,"	3407	Roan	Thos. Bates.
"Belvidere,"	1706	Yellow Red	Thos. Bates.
"2nd Hubback,"	1423	Y. Red & White.	Thos. Bates.
"2nd Hubback,"	1648	Y. Red & White.	Thos. Bates.
"The Earl,"	646	Yellow Red	Thos. Bates.
"Ketton 2nd,"	750		
"Comet,"	155	Roan	Chas. Colling.
"Favourite,"	250	Roan	Chas. Colling.
"Daisy Bull,"	186	Roan	Chas. Colling.
"Favourite,"			
"Hubback,"			

"DUCHESS 97th."—The Property of M. A. COCHRANE, Esq., Compton, Quebec.

"Duchess 97th."

WE have much pleasure in presenting our readers with a life-like representation of "Duchess 97th," the costliest Short Horn importation ever made into this country. When Mr. Cochrane brought "Rosedale" to Canada, he placed on our soil the finest known specimen of the Booth family of Short Horns, and "Duchess 97th" is not a whit her inferior as a representative of the Bates family. The story of her purchase, voyage, and arrival has already been told in our columns, so that we need do no more at present than supply her picture and her pedigree. It is a source of pride to all stock men in this country that we possess these choice animals, and Mr. Cochrane has universal good wishes that he may find his large outlay a profitable investment.

PEDIGREE.

"DUCHESS 97TH," Red. Calved March 27th, 1867. Bred by Capt. Gunter, Wetherby Grange, Yorkshire; got by "3rd Duke of Wharfdale," 21619, Roan, bred by Capt. Gunter.

Oldest Horse.

PERHAPS the oldest horse in Ontario is owned by M. Yoder, of Springfield, Elgin County. Old "Jerry" was bought at Mitchell's Corners (now Aurora), twenty years ago. He was sold at that time for an old horse. Twenty-five years ago he was a dashing roadster on Yonge St. He is no doubt now over thirty, and as fat, plump, and handsome as a four year old colt; will not bear the least touch of the whip, and is as shy and notional as he was at his prime. If this is noticed by anyone around Aurora who remembers the horse, will he please send his exact age to the CANADA FARMER, as no doubt many would like to know the age a horse may live to with proper care, and be useful.

Would it not be well to have high prizes at Agricultural fairs for the best old horses? Any one can have a good colt, but it is only a good, kind horseman that can show a sound, active old horse. We see many horses at twelve that are old, prematurely old, every joint out of place, and the owners will boast of heavy loads drawn and long drives.

Old "Jerry" may not be the oldest horse in Ontario, but he would be matched for strength, roundness of form and mettle against any horse over twenty-five in the New Dominion.

☞ The Merino ram, Golden Fleece, owned by Messrs. Mason & French, of New Haven, Vt., recently died of lung fever, or pneumonia. He was valued at $10,000.

☞ The Iowa *Homestead* has an article designed to show that "the extra large breeds of swine are not so valuable for general use as the medium weights."

Veteriuary Department.

Colic in Horses.

Colic is a frequent complaint amongst horses during the fall season of the year, and farm horses are exceedingly liable to attacks of this very painful disease. At this period a common cause is the sudden change in the state of the temperature; a cold, raw day being a prolific cause of the disorder. It is also produced by turning horses out to grass at night, and giving them, when taken up in the morning, a large feed of oats, and immediately afterwards putting them to rapid or heavy work. It is also brought on by allowing an animal to drink freely of cold water when he is in a heated state. Colic occurs in two forms. When the muscular coat of the intestines is spasmodically contracted, it is known as spasmodic colic. When the bowels are distended with gas, it is called flatulent colic. The former is most frequently met with, and the symptoms are well marked. The horse is suddenly seized with excessive pain: he becomes uneasy, stamping with his feet, and looking round his flanks; all at once he will throw himself down, and attempt to roll over and balance himself on his back; this position seems to give the greatest amount of relief; he will frequently break out in a profuse perspiration. In a short time the paroxysm will pass off, and he will immediately get upon his feet again. But before long the spasms will again return, and perhaps with increased violence, when he will throw himself to the ground and roll wildly about as before. During the period of quietude between the paroxyms, the pulse in many instances will be little altered, and over the legs and ears are of a natural heat. When the attack is the result of any debilitating influence, as exposure to cold or hard driving, the pulse is quick and weak, and the ears and legs are extremely cold. Spasmodic cholic, although a very painful affection, is generally of short duration, and by no means a fatal complaint. When it terminates favourably the painful symptoms become less severe, and the interval of quietude is much longer. If an unfavourable course of the complaint occurs, the griping pains increase in frequency, and the animal rolls frantically about, sweat pours off him in streams, and the pain becomes almost continuous, and inflammation of the intestines sets in, which speedily terminates in death. Death may also occur from the violent spasmodic contractions. In the treatment of this disease, the patient should be placed where he has plenty of room to roll about as he chooses; nature tells him the position which gives relief. Frequently poor animals are subjected to very harsh treatment with the view of keeping them upon their feet; the whip is freely applied and they are kept trotting about, which, instead of relieving, has a tendency to aggravate the symptoms, and we have no hesitation in saying that many valuable animals are lost from this absurd and cruel practice. There are many medicines used which have an excellent effect in giving speedy relief. One of the best is one to two ounces of the tincture of opium, given in four to six ounces of water or linseed oil. If no relief follows in one hour, half the dose should be repeated. Injection of soap and water should be given every half hour, and the abdomen well hand-rubbed. When the pain is very severe, hot cloths applied to the belly have a very good effect. Except in cases where inflammation of the bowels is likely to take place, blood-letting is not required. After a severe attack it is always advisable to allow the horse a day's rest.

Scratches on Horses.—A correspondent of the *Country Gentleman* sends that journal the following recipe, which he pronounces "the best medicine that can be made" for the ailment above-named:

4 oz. ointment of rosin; ½ oz. finely ground verdigris; 2 oz. turpentine; ½ oz. oil of origanum; ½ oz. tincture of iodine; 1½ lb mutton tallow. Mix all well.

Wash the foot clean with castile soap and soft water, and apply the ointment after the foot becomes dry. Once a day will be sufficient to apply the ointment.

The Dairy.

Dairymen's Association.

The Secretary of the American Dairymen's Association has sent out the following, which is worthy the attention of dairymen:—

"The time has now arrived when dairymen should be preparing for the next annual convention of this Society. They are now in the midst of cheese making, and are favorably situated for experiment and tests; for proving or disproving the various theories relating to the business; for searching for the causes of the troubles which the practical cheese-maker so often encounters. For instance, there is an almost universal complaint this season, of the floating curd. Careful observation on the part of many dairymen in various sections, when brought together and compared at the convention, may lead to a solution of this difficulty, by pointing out the cause, and thus indicating the remedy; and so respecting other troubles.

Besides, the subjects under discussion at the meeting last January were by no means exhausted, and it is known that scores of factories are testing the value of the suggestions then made regarding curd, milk, two days' pressure, etc. Let us have the result of these tests.

It would add greatly to the interest of the convention, if members—practical dairymen—would take a more prominent part in the meetings, coming with short and carefully prepared papers on subjects connected with milk and cheese, giving results of experiments and the conclusions drawn from them, of new theories and practices respecting cheese-making, or any of the details of the process, and the reasons and observations which have induced the change.

Another valuable feature might be added in the introduction to the notice of the convention of samples of cheese, shown for their style, manner of manufacture, or for other reasons, not with a view to competition, but that this demonstration may be made of the value of the experiments of which the cheese shown is the result.

Communications from dairymen and others upon subjects relating to this matter, or making suggestions respecting the next annual meeting, will receive prompt attention.

Let members begin at once to prepare themselves to add to the interest and value of the convention of January, 1869."

New Milk Cooler.

A milk cooler, exhibited at the Herkimor County Fair, deserves special notice. On first inspection it might be mistaken for an ice cream freezer, but after a closer examination and a little explanation from the stranger who was exhibiting it, it was found to be a device for cooling milk as it is drawn from the cow. The construction being novel, and of some interest to dairymen, we will attempt a brief description for the benefit of our readers. The milk, as it is poured into it, passes in a thin circular sheet, about the thickness of wrapping paper, for a distance of about three feet, between two thin metallic surfaces, over which cold water is constantly passing. By this means the animal heat is entirely removed, and the milk reduced, gradually but immediately, to any degree of temperature desired. A thermometer being attached to the machine, having its bulb immersed in the cooled milk, enables the operator to watch and control the process. The milk, after being cooled, is collected together and passed out through a tube, to which a faucet is attached, into a pail or can. It is claimed for this little affair, which is called the "Empire Milk Cooler," and which a child can carry in his hand, that it will cool milk as fast as four or five men can milk. Gardner B. Weeks, the Secretary of the American Dairymen's Association, has examined it, and recommends it for general use "in private dairies, as well adapted to put the milk in admirable condition for sending to the cheese factory or market." The machine can be readily taken apart and cleaned, with the greatest facility. We hope an arrangement will be made with some of our manufacturers of dairy utensils, to enable our dairymen to test the utility of this cheap and simple device. If one-half which is claimed for it is true, it will indeed be a valuable accession to the dairy interest. It took the first premium at the State Fair. The inventor is Dr. M. F. Potter, of Kaneville, Illinois.—*Am. Exchange.*

☞ The London dairymen have decided that the most profitable cows are graded short horns, not because they give more milk, but because when past milking they make most beef.

Poultry Yard.

Pigeons.

To the Editor of The Canada Farmer:

Sir,—A few remarks on fancy pigeons, in continuation of the letter which appeared in the Canada Farmer of September 15th, may interest some of your readers. Fantails are perhaps the most numerous of any fancy pigeons in Canada, and are sometimes pretty good; but they are far behind the "Side View" in Tegetmeier's Fantail. Many have tufts, but want that shape and fineness of neck so desirable. I have never seen any with the carriage up to the English standard.

The best fancy pigeons in Canada are the Trumpeters, although here they are called Drummers. They are as a class deficient in size, but the moustache and feathering are good. They are chiefly whole-colored. The Black Mottled are considered the best; but I remember in the year 1830, seeing at Mr. Warner's, of Hoddesdon, Hertfordshire, England, what I have never seen since, a large flight of these birds, which were white, with little black crescents all over their plumage. They were very similar in color &c., to the picture given in Mr. Eaton's work, but, if possible, more uniformly marked. The effect of this plumage was very pretty and peculiar.

Turbits are scarce in Canada; some few specimens are good, but there are not many, although from the markings of the mongrels in the streets there appears to be a very general tendency to Turbit shoulders.

Owl Pigeons in Canada are represented by one pair. There are some breeds called such, but very inferior specimens.

Runts are unknown. There are plenty of mongrels, but no true Runts.

Of the German Toys I have seen attempts, but nothing very striking, and of course they are very scarce.

I was almost forgetting the "Barb." Mr. Johnson, of London, exhibited a good pair at the Ontario Show. These are the only specimens I have met with of any merit.

I think I have mentioned all the varieties I have met with. They are all decidedly below par; but as the utility of them is questionable, except as an amusement, it is perhaps no wonder that they should be scarce in a young country like this. Nevertheless, as the Societies are in their annual exhibitions offering premiums for the best of the different varieties, I can but hope that the specimens will deserve the prizes awarded.

F. C. HASSARD.

Toronto, October 20, 1868.

Ontario Poultry Association.

The first meeting of the season was held on Friday evening, Oct. 16th, in the Agricultural Hall, Yonge Street. There was a fair attendance of members. After the transaction of some routine business, and the election of several new members, the subject of a Fall Show was discussed. It was urged by several members that the holding of two poultry shows in the year was too much, and that the efforts of the society should be concentrated in one annual exhibition, to be held either in the spring or fall, as would be thought most suitable to exhibitors, and advantageous to the public. As the subject was one on which a fuller expression of opinion from exhibitors was deemed desirable, no final action was taken; it was, however, determined on holding a fall show on the 25th of November next, open to the entry of birds of members of the Association only. As this exhibition is not intended for competition, but merely to give fanciers the opportunity of showing and comparing their birds, and of selling and making purchases if desired, no prizes will be awarded. It is understood that several members of the Association had imported some choice poultry from England and the continent of Europe during the summer, and several more specimens are on the way here. The praiseworthy efforts of the Poultry Association deserve every encouragement; and this contemplated exhibition without prizes should be especially appreciated by the public, as affording an opportunity of improving stock from the progeny of choice imported birds at prices much below the original cost to the importers. We trust the project will be carried out and prove successful. Intending exhibitors should apprize the Secretary of their purpose before the close of the week, as the 25th of the month has been fixed upon as the date, on or before which all applications for pens should be sent in; and the holding of the show will depend on the number of specimens that may be expected. The final decision on this matter will probably be made on Monday, the 9th, when the Association hold their next meeting.

Duty on Imported Poultry.

A number of valuable importations of poultry from Great Britain and the continent of Europe have recently been introduced into this country at considerable cost by enterprising individuals, who deserve all possible encouragement in their efforts. It is the wise policy of many public bodies in this country, and in general of the Government of the Dominion, to foster in various ways the improvement of our live stock by importations from the old country. The Provincial and other agricultural associations double the amount of premium gained by any imported animal, and the Government have taken off the duty on most classes of live stock imported for the improvement of the breed; but hitherto the class of poultry has not shared in this exemption. The subject was brought up at the last meeting of the Ontario Poultry Association, and the Secretary was requested to communicate with the Commissioner of Customs, and ascertain how the law stood in this matter; for, naturally believing that the same regulation which applied to the importation of cattle extended to poultry, some gentlemen had declined to pay the duty on their imported fowls. The Secretary accordingly wrote to the Commissioner of Customs at Ottawa, and received the following reply:

"In reply to your letter of the 17th instant, I beg leave to inform you that the Tariff sanctioned by Parliament on the 22nd May last (31 Vict. cap. 44) is the present law governing duties and exemptions on importations into Canada. The Act referred to supersedes all previous rules and orders at variance with its provisions, and the free list in the schedule to that Act not containing any exemption in favour of the importation of poultry for the improvement of the breed, the department has no power to create one, and the article is therefore dutiable as non-enumerated.

I have the honor to be, Sir,
Your obedient servant,
R. S. M. BOUCHETTE."

Such being the case, the Commissioner of Customs has of course no option in the matter; but we believe the omission in the law as it stands should be remedied, and now that the matter has been brought under notice, we trust the Department will seek at the next meeting of Parliament to have the class of poultry put on the same footing as other stock; for though not equal in importance to the nobler animals, they should not be overlooked, and the importation of fresh specimens from Europe involves in itself a considerable amount of trouble and expense, which should not be increased by the additional burden of a Government impost.

☞ A Parisian speculator sent a large number of carrier pigeons to Lisbon, to replace the telegraph, when all communication with Spain was interrupted

Entomology.

Cockroaches.

These disgusting creatures, which swarm at night in the kitchens and cellars of houses in towns, are happily seldom or ever seen in the country, thus lending an additional though negative charm to farm life. Many nervous people and cleanly housewives detest them—indeed to such an extent that they would gladly exchange the comforts and conveniences of town life *with* cockroaches, for the, to them, more dull existence in the country *without* cockroaches. To be sure we have them in the country, but then our rural species are only found under stones and the bark of old stumps, and very rarely, if ever, in houses. The domestic species, like many of our most noxious insects, is an imported pest, and not a native of this country; it is supposed to have come from the East Indies originally, by the aid of commerce, and thus to have spread all over Europe in recent times; thence it came to the seaboard towns of America, and now it is to be found in all our large towns and cities, even a thousand miles from the sea. Its flat form enabling it to creep under the hoops of barrels and into the crevices of trunks and packing cases, as well as its secret nocturnal habits, causes it to be carried about without notice, and renders easy its establishment of colonies all over the world. Though commonly called a "black beetle," it is not a beetle at all, but belongs to the soft-bodied, straight-winged order of insects (*orthoptera*), which includes also crickets, grasshoppers, and locusts; all of them have their under wings, when not in use, beautifully folded up like a fan, in long straight plaits over their back; and they also differ from beetles in undergoing no complete transformation in coming to maturity, the larvæ being generally only distinguished from the adults by the absence of wings and variableness of size, and the pupæ (unlike those of most orders of insects which are inactive during this stage) by their rudimentary scale-like wings. Our common species is about an inch long, and of a dark brown colour; in the eyes of most people it is a sufficiently repulsive object, but what would our lady friends say if they found their larders and pantries infested by the kind that swarms in the tropics, whose wings expand six inches, and whose bodies and appetites are large in proportion! We have in our collection a specimen brought us from Mexico, whose wings expand five and a half inches, while its body is two and a half inches long and an inch broad; with the exception of breadth of wing, it is as large as the immense emperor moth that we figured in our last number. Fancy such huge beasts flapping about your kitchens and trailing their loathsome bodies over your various household stores, and then thank Heaven that you live in Canada, and not in the tropics! They are said to devour all kinds of victuals, dressed or undressed, and to damage all sorts of clothing, leather, books, paper, &c., which, if they do not destroy, they at least soil with their filthiness. They swarm by myriads in old houses, making every part filthy beyond description. They have also the power of making a sharp knocking with the knuckle upon the wainscoting, whence one species is called the drummer in the West Indies; and this they keep up replying to each other through the night, to the great annoyance of those who are trying to sleep; those who do sleep are even said to be sometimes attacked by them, and they will also eat the extremities of the dead. Thus it appears that there is no respite from them at night, asleep or awake; dead or alive, they give no peace!

The common household species in this country, though bad enough, is of course not to be compared to the foregoing. As is well known, it is nocturnal in its habits, hiding itself during the day in holes and crevices, under the skirting boards of rooms, &c.; it is very fond of heat, being generally found in the greatest numbers near stoves and furnaces, and especially about bakers' ovens, where they have the additional attraction of a constant supply of food. It eats flour, bread, meat, in fact all kinds of provisions, and has a particular relish for anything greasy or oily; it is fond also of the blacking on boots, and will sometimes eat leather and all. If any one wants to know what cockroaches look like, all he has to do is to go at midnight with a lighted candle or lamp, and suddenly enter the down-stairs kitchen of some friend's house in town; he will see these disgusting creatures scuttling off in every direction over the tables and floor, and will probably learn quite enough about their appearance in a very few minutes.

How to get rid of these creatures, is the next question. A capital trap for them may be made with a small wooden box, having a circular hole at the top fitted with a glass rim, out of which it is impossible for them to escape. It should be nightly baited, and the contents thrown the next morning into scalding water. Various poisons are also used with success; Dr. Harris mentions the following:—Mix together a table-spoonful of red lead and of Indian meal, with molasses enough to make a thick batter, and place the mixture at night on a plate or piece of board in the closets or on the *hearths* frequented by them. They will eat it, and become poisoned thereby. The dose is to be repeated for several nights in succession. Another mode is to mix one teaspoonful of powdered arsenic with a table-spoonful of mashed potato, and crumble one-third of it every night, at bed-time, about the kitchen hearth, or where these insects will find and devour it. As both these preparations are very poisonous, great care should be taken in the use of them and of any portions that may be left.

Mosquitoes in England.—The tropical heat of last July, which prevailed in Northern Europe as well as in this country, appears to have rendered the gnats of England peculiarly rabid, as we may judge from the following account taken from an old country paper:—

"A large number of girls and boys employed in the East Laboratory, or marsh portion of Woolwich Arsenal, have been disabled by the mosquitoes, the swelling and irritation in some cases assuming an alarming and dangerous appearance. The stings are treated at the Arsenal Infirmary by an alkaline lotion of common soda and water, the poison emitted being an acrid acid. Several entomologists have visited Woolwich, and they all agree that the insects are the *Culex pipiens* of the gnat genus, common to the watery and marshy places of all countries, but deriving additional vigour and ferocity from a warm and moist condition of the atmosphere. Legions of these English Mosquito larvæ can be seen in the stagnant ditches at North Woolwich and the marshes at Plumstead. They thrust a sharp and strong proboscis into the soft skin, preference being given to females and children. Though they become more blood-thirsty and venemous in hot weather, some experiments made with them in the arsenal prove that they can resist any degree of cold."

A few years ago we remember an English medical friend of ours, who came out to settle in the backwoods of this country, was obliged shortly after his arrival to place his arm in a sling, on account of a single mosquito bite: he soon, however, became more accustomed to them.

Water-Snakes.—We are much obliged to "Zebra" for the interesting specimens of these curious creatures that he has allowed us to retain. We purpose preserving them in alcohol. His duplicate specimens, we should think, might be kept alive for some time by frequently changing the water in which they live. It would be an interesting experiment to present the young ones with a grasshopper, cricket, or other insect, and observe whether they would attack it or not. Our correspondent states that he finds them an unerring weather-glass, as they poise themselves at any distance between top and bottom of the water in the vessel; we have observed the same thing with leeches, which we have kept for some months in water, and always noticed that they varied their position in accordance with the greater or less density of the atmosphere.

Correspondence.

Winter Barley—Crops in Hastings, &c.

To the Editor of THE CANADA FARMER:

SIR,—I am pleased to hear that you have sent for some of the wheat advertised by Mr. Deitz, and shall be interested in learning how it succeeds with you.

I see by his circular that he advertises a variety of winter barley for sale. Would it not be worthy of experiment? Some varieties of it must be very hardy to grow and mature in latitudes where, if I am informed correctly, other cereals do not flourish. In high, loamy land, too light for the spring barley, for the short time it has to grow, it would, perhaps, be valuable. Another advantage would be its ripening earlier, so that a crop of buckwheat or turnips could be sown after it. It weighs more to the bushel than spring barley, and is therefore more profitable. How can a straw-cutter be used to best advantage in economizing fodder? Would it pay to cut up corn-stalks for cattle? If you would favour us with an article on the use of it, it would be of interest. Our crops here are rather light, especially spring grain. Many fields of peas were not harvested—some yielded nothing but straw, never blossomed. Such kinds as grow very quickly would be best adapted for such a season. Farmers have sown more fall grain than usual, I think. On stiff tenacious clays, the growth of fall grain should be encouraged. Clover crops were benefited no much by a liberal dressing of plaster and the early rains, that they bade defiance to the drought, and a large crop was obtained in good order. The second crop was rather poor, and not worth saving for seed in many places. Potatoes are very much benefited by the late rains; but other root crops are poor. I sowed turnips twice without success; but I have a few rows of fine carrots. I think other roots are surer than turnips, mangold wurzel, kohl rabi or carrots. There will not be a large crop of fruit hereabouts. Apples, in old orchards especially, are small, and bear evidence of the severity of the drought; but young trees, properly mulched and attended, bear fine large apples. Is not fresh manure injurious to young apple trees? What is the best dressing? We have a green-gauge tree on our place, apparently very thrifty, but it never bears. What would be the best way to make it fruitful? The Web Fall Caterpillars were very numerous on the trees here, not only on the apple. JOHN LEBOUTILLIER.

Sidney, Sept., 1868.

NOTE BY ED. C. F.—We have to apologise to our correspondent for the late appearance of the above letter. The pressure of Exhibition and other matter has prevented an earlier insertion. With regard to the use of corn-stalks for fodder, we can say from personal experience that, cut with the straw-cutter, and mixed with other food, they are useful and economical. In Illinois we fed them both in this way, using horse power to the straw-cutter, and also by the ruder and more common method of turning stock into the fields after the corn crop was gathered. The feed contributed its full share to keep our cattle in excellent condition. We believe barnyard manure and ashes a good dressing for orchards. Other miscellaneous queries shall receive attention as soon as possible.

A LADY writing from Hull Township has our best thanks for her pleasant communication, which is, however, too late for more than this acknowledgment in our present issue. We reserve it for the earliest opportunity of publication.

WEANING COLTS.—An inquirer from Quebec, over the signature "Gosford," writes:—"If any of your correspondents practically acquainted with a good way of weaning colts would give the benefit of his experience through your columns, he would confer a great favour."

We hope some experienced farmer or breeder will respond to the above.

ALDERS.—PAINTS.—A correspondent sends us the following brace of enquiries:—"Please inform me, through the medium of your paper, the easiest and most effectual method of eradicating the 'Alder bush' so often found growing on our streets, uncultivated fields and fence corners—also, the different ingredients and proportions used for painting agricultural implements and waggons. Colours, red, blue, green, yellow, and brown."

ANS.—The Alder flourishes on wet land and river sides. We never saw them in the *streets*. Grubbing and draining will destroy them. With regard to the second query, the proportions of oil and solid material to produce the requisite consistence will soon be ascertained by experience. For the colours mentioned the following ingredients are required:—Red, Venetian red; blue, Prussian blue and a little white lead; green, Brunswick green; yellow, chrome yellow and a little white lead; brown, black, with a little Venetian red.

DEEP PLOUGHING.—A subscriber, whose example we highly commend, sends us the following communication and enquiry:—"I have just finished ploughing a field with three horses. I ploughed it about twelve inches deep. The soil is a stiff clay, and it is very hard in the bottom. Would you be kind enough to inform me whether I could cultivate such land any deeper? Would it be best to plough it again this fall, or plough it in the spring?"

In reference to the deep ploughing, our correspondent does not inform us what sort of plough he used. It is not well, especially in cold clay, to turn *up* to the surface too much new soil at a time, though it can hardly be loosened too deeply. The next ploughing would be most advantageous in the spring, or might perhaps be dispensed with by the use of a good cultivator. Our correspondent is in the right track, and will no doubt see the benefit of his trouble in augmented crops. An excellent method of deep cultivation is to follow in the furrows made by the first plough with a subsoil plough that shall loosen and stir the ground to the depth of several additional inches without bringing fresh soil to the surface.

The Canada Farmer.

TORONTO, CANADA, NOVEMBER 2, 1868.

Westward Emigration.

THERE is no denying the fact that a large proportion of the fresh arrivals of emigrants from the Old Country pass through Canada to settle in the Western States. We continually meet in the daily papers such announcements as the following:—"A train of five hundred emigrants passed through the city to-day, most of whom were bound for Wisconsin, Illinois, or Iowa." Of these a large number may be Germans or Norwegians, but there is no doubt that, even from British ports, a considerable proportion of those who cross the Atlantic and land on our shores do not take up their permanent abode with us, have not come out with a view of instituting any comparison of the relative advantages of Canada and the States, but left home with the fixed intention of settling in the fertile lands of the adjacent Republic, and using this country merely as the readiest highway to the West, scarcely even look upon us, and "pass by on the other side." It would occupy far more space than the limits of an article in an agricultural journal to discuss fully the reasons or the merits of this widespread preference, but it may not be amiss briefly to notice the important subject, and show why we do not think that even the most favoured regions of the West possess any overwhelming advantages, as a field for emigration, over the unoccupied and inviting portions of our own Dominion.

In addressing British subjects it is hardly necessary to say that there is nothing in the government or institutions of the United States that will secure a greater amount of personal freedom and social rights than will be found under British or Canadian rule. All that is best and noblest in the constitution and laws of the "Great Republic" had its origin in the spirit and institutions of the mother country: and there is no people in the world who enjoy more true liberty than the subjects of Great Britain. Nay, more; we are fully convinced that in this respect there is no nation under the sun can boast of equal advantages. No one, now-a-days, will exchange the British dominions for any land on the face of the earth, to secure greater freedom than is enjoyed throughout the whole extent of the empire.

If it is not the government of the United States, is it the climate of the country that gives the Western portion any superiority over ours? In this respect, we believe the advantage is with us. Of course over so vast a territory there is great diversity of climate; but comparing our own with that of Wisconsin, we perceive a close similarity, while in many respects we prefer the climate of Canada to that of Michigan, Central and Northern Illinois, or Iowa,—the portions of the West with which we are best acquainted. In these States the cold is more severe than it is with us, the heat of summer is more intense and trying, and the changes of temperature are more sudden and extreme. The snow, which generally for a long season covers the face of the earth in Canada, is also a great advantage, both as a protection to winter crops, and as affording facilities of traffic and travel. In this country we are also comparatively free from those intermittent and other fevers that prevail to so serious an extent over a large portion of the Western States. Most people who have lived, as we have done, in both countries, will give the preference to Canada, as regards climate.

Granting that the broad West cannot boast of a finer climate than our own, it may be claimed that the soil of the region is superior. We will acknowledge that it is more uniformly of excellent quality. The prairie land especially cannot be surpassed in richness and fertility; and for the growth of the staple crop of the country, Indian corn, both soil and climate undoubtedly surpass the very best districts of Canada. But this is not the case in regard to other crops. The cereals flourish best with us; and the average yield of wheat especially is larger, per acre, throughout the whole of the wheat-growing region of the Dominion, than anywhere in the States. The place of corn, too, as winter food for stock, is well supplied by roots, which find a more congenial soil here than either in the South or West. Many portions of this country are also as well adapted for the growth of all kinds of fruit as any part of the West.

With regard to the profits of agricultural produce, we are nearer the seaboard, and of course nearer the markets, than our neighbours, and command, therefore, a higher price for all we can raise. This is a most important consideration, and would counter balance any presumed advantage of either richer soil or cheaper land. The same remark applies to the profits of live stock. If we have no unoccupied prairies for free pasture, we can sell at a price that will amply repay the additional cost of raising; and we can point to the success of our principal breeders, and the excellence of their stock, in evidence of the profitable field which Canada offers for this branch of agriculture.

There is again another point in which we have the advantage; namely, the cost of living. The heavy taxation and the unsettled state of the currency, consequent on the late unhappy war, have so depreciated the value of American money and increased the price of all articles of clothing and most of the necessaries of life, that the United States has become notoriously a dear place to live in. Many have been tempted by the deceptive accounts of high wages in the States, forgetting to make allowance for the depreciated currency, have left Canada to try their fortunes on the other side, have been woefully disappointed, and after a longer or shorter trial have gladly returned to this country, poorer but wiser than when when they left it.

If we allude to another consideration which will have weight chiefly with Englishmen, that is, the sympathy they will meet with here and miss on the other side in regard to their national predilections, we trust we shall give no offence to any right-minded American. It is of the highest importance that friendly and fraternal feelings should be cultivated between neighbours so closely allied, and from personal experience we have every reason to speak well of the frank, kindly, and generous disposition of those Americans with whom we have come into closest contact. During a residence of six years in the west, we do not remember hearing a single remark calculated to wound our national partialities or give offence to our patriotism. But while we gladly give this testimony in regard to our personal intercourse with the people, we must be allowed to make exception to the tone of too large a portion of the American press, and record our conviction that a loyal Englishman would be more at home in Canada than in the land of the *New York Tribune* and other organs and abettors of Fenianism, the maddest and most wicked phase of anti-British mania. Moreover, it is not to be denied that a reckless and lawless spirit is too prevalent in some portions of the country; though this remark applies less to the West than to the South, where Liberty is so very rampant that a trusty revolver is a necessary weapon of self-defence against her vagaries.

No doubt a large amount of the popularity enjoyed by western lands, and the consequent influx of emigration, is due to the liberal policy of the American Government in the free grants of land and the general encouragement given to emigrants. Much also is due to the filial and fraternal spirit that induces the Irish, Germans, Swedes, and Norwegians who have found a home on this side the Atlantic to expend their first earnings in assisting other members of their families from the fatherland to join them in their newly adopted country. The whole subject is one of great and pressing importance, demanding the serious consideration and the prompt and liberal action of the Canadian Government. Much may also be done by disseminating correct information respecting the resources and prospects of this country, not only in England, but also in those parts of the European continent whence the stream of trans-Atlantic emigration chiefly flows. New railroads are projected, now territory will be opened up, and many fresh inducements are yearly growing out of the progress of our Dominion that should bring a large accession of population to this country from the struggling classes at home. We frankly avow our belief that as there is no portion of the British colonies so easy of access, there is also none that offers a better prospect to the emigrant than this Dominion of Canada; and we have yet vast tracts of territory inviting occupation, that are as eligible for settlement as any district within the limits of the United States.

Cattle Disease Convention.

WE gave some account in our last issue of a meeting held at Rochester, N. Y., during the State Fair, in reference to the Texan cattle disease, at which it was unanimously resolved to take steps toward summoning a Convention with a view to uniformity of legislation in the several States of the American Union, and in the Dominion of Canada, both in regard to the disease now raging, and the regulation of matters connected with the transportation of cattle. The Cattle Commissioners of the State of New York have issued a circular calling such a Convention, and we have pleasure in giving it an insertion in our columns. We have been permitted to see a private letter from one of the New York Commissioners, the Hon. J. S. Gould, to the Hon. D. Christie, in which that gentleman states that the Texan disease is still rife,—that it appears to be most insidious in some of its characteristics, and that positive proof has been obtained that it may be and has been transmitted from native cattle to native cattle, that have never been in contact with the Texans. Mr. Gould thinks we have made a mistake in relaxing the stringency of our regulations, and says that there is an absence of strict inspection, so much so that an ox with an enormous cancer on his face went through to Buffalo the other day. The circular is as follows:

ALBANY, October 13, 1868.

DEAR SIR:—In view of the ravages of the disease known as the Texas Fever among cattle, and the inadequacy of the laws enacted by the several States for the repression of this and other kindred diseases, and the conflicting provisions of these laws, which have been disclosed since this disease has been prevalent, a general desire has been felt and expressed by farmers, drovers, and the consumers of meat in several States, that a wise and efficient system of legislation should be adopted for the repression and prevention of this and other similar diseases in the several States, so that the laws should be harmonious and adapted to mutual protection. And it has been believed by nearly every one that has expressed an opinion upon the subject, that the best mode of effecting this object is by the assembling of a convention of the Cattle Commissioners of the several States interested in the subject, who would represent all the varied interests of the producing and consuming States, and supply all the information necessary for the full elucidation of the subject, and whose duty it should be to prepare a draft of a law which should ensure the most perfect protection to all parties, to be recommended to the several Legislatures for adoption. And the Commissioners of the State of New York having been requested by the Commissioners of several of the States, and of the Dominion of Canada, to take the initiative in calling such convention,

We do, therefore, recommend that a convention be held in the city of Springfield, in the State of Illinois, on Tuesday, the first day of December, 1868, at twelve o'clock noon of said day.

The object of such convention is to consider the pathology, symptomatology and history of the Texas cattle fever and other infectious and contagious diseases to which cattle and other stock are subject, and the best methods of preventing the spread of such diseases with reference to the interests of the producer and consumer, and also to consider the sanitary requirements of the community with reference to the feeding and rest of the animals in transitu, and to the best methods of slaughtering and preparing them for market. The convention will also prepare a draft of a law which shall provide for the accomplishment of these objects, to be submitted to the Legislatures of the States represented therein for adoption. Each State and Province to be represented by three Commissioners. The Cattle Commissioners of the State of Illinois are requested to secure a suitable place of meeting for the convention.

His Excellency, the Governor, is hereby respectfully requested to transmit copies of this call to the Governors of the several States, where such Commissioners are not already appointed, with a request that they would appoint such Commissioners to represent their States in the Convention.

M. R. PATRICK,
L. F. ALLEN,
JOHN STANTON GOULD.

The Nova Scotia Provincial Exhibition.

FROM the accounts that have reached us of the great Agricultural and Industrial Exhibition of Nova Scotia; it appears that the undertaking has proved eminently successful. The Exhibition was open from the 5th to the 10th of October, inclusive, was largely attended, and excited a warm and general interest. We gather, chiefly from the report of a speech delivered on the occasion by Hon. Joseph Howe, that the great feature of the show was the collection of apples, which we are told could not have been surpassed in any part of the world. Of other fruit there was a fine display. There was also a splendid collection of vegetables. The show of stock was creditable. The principal prizes for cattle were taken by agricultural societies. The world-renowned name of Cunard figures also conspicuously in the prize list. The industrial department bore ample testimony to the mechanical skill and enterprise of the Province. The eloquent speech of the Hon. Joseph Howe, in which he expatiated with patriotic pride on the wonderful progress of the Province and the noble character of the people, closed the public proceedings, which appear to have been altogether of a very enthusiastic character. We hope to receive an official account in the next number of the *Nova Scotia Journal of Agriculture*.

Book Notices.

DRAINING FOR PROFIT AND HEALTH. By Geo. E. Waring, Jr., Engineer of the Central Park, New York. Illustrated. New York, Orange Judd & Co: 245 Broadway.

WHETHER viewed in its relation to the profit of farming, or the health of towns and cities, drainage is well worthy of much more attention than it gets either in town or country. The little work above-mentioned is the completest and most practical treatise we have met with on the important subject to which it relates. Within the compass of some 250 pages, it treats of the reasons for draining; how drains act, and how they affect the soil; how to lay out a system of drains; how to make the drains; how to take care of drains and drained land; what draining costs; will it pay; how to make drain tiles; the reclaiming of salt marshes; malarial diseases; house drainage and town sewerage in their relations to the public health. The illustrations, forty-nine in number, make the practical directions very plain; and altogether this is just the book for an intelligent farmer who has resolved to drain, and means to do the work thoroughly while he is about it.

THE PERCHERON HORSE. Translated from the French of Charles Du Huijs, Author of the "Dictionary of the Pure Race;" "Trotters;" "The Horse-Breeder's Guide;" &c. Illustrated. New York Orange Judd & Co., 245 Broadway.

THE breed of horses of whose history, qualities, and characteristics this little work treats, is beginning to attract considerable attention in this country. Four stallions of this class were exhibited at the recent Quebec Provincial Fair, all imported from France within the past two years. We believe they will prove a great acquisition to the farmers of the Dominion, inasmuch as they combine the qualities that are valuable on the farm in a higher degree than any other known breed. Of larger size than the Clydes, being on an average taller and longer, and of scarcely inferior muscular development, they are nevertheless capable of attaining a high rate of speed on the road. Indeed, for moving heavy loads quickly they have no equals, as travellers who have ridden in French diligences and Parisian omnibuses uniformly testify. What the farmer wants is a horse with which he can plough deep, haul a large load, or drive his family to church and market, at something more than a snail's pace. This he has in the Percheron. The work above-named supplies all the desirable information respecting this valuable animal, and we commend it to the attention of the stockmen of Canada.

AMERICAN AGRICULTURAL ANNUAL FOR 1868. AMERICAN HORTICULTURAL ANNUAL FOR 1868.

FOR some reason or other, these publications, issued by Messrs, Judd & Co., of New York, have only recently come into our hands. But they have a permanent rather than transient value, and furnish a large amount of practical information, useful any month in the year, and any year in all time. The *Agricultural Annual* contains, in addition to much other valuable matter, nearly thirty pages of information respecting factory cheese and butter-making, which render it worth many times its cost to any dairyman; while its Horticultural companion is crowded with a miscellany of useful and attractive contents, among which it would be difficult to elect what is of greatest interest and worth, without it be the articles on small fruits and new vegetables. Both publications are beautifully and profusely illustrated.

A FOURTEEN WEEKS' COURSE IN CHEMISTRY. By J. Dorman Steele, A.M., Principal of Elmira Free Academy. New York: A. S. Barnes & Co., 111 and 113 William Street.

THIS publication is meant as a school text book, but is equally suitable for private use. It is intended to teach such as do not expect to become chemists, nor even professional students, a few leading principles and applications of the noble science to which

it relates. The preface states that "unusual importance is given to that practical part of chemical knowledge which affects our every-day life, in the hope of bringing the school-room, the kitchen, the farm, and the shop into closer relationship." This book is likely to give not a few, who study it, a great desire to study more extended treatises, and if it does this only, it will prove a very useful contribution to the cause of popular education. But beside this it will give many a glimpse of the temple of nature, who cannot possibly explore its mysteries, or study its beauties to any great extent.

A Fourteen Weeks' Course in Descriptive Astronomy.

This work, by the same author as that last mentioned, and issued by the same publishing house, is also similar in its plan and purpose, and aims to do in the region of Astronomy what the other work does in the domain of Chemistry. Recent discoveries in astronomical science are particularized in this volume, and the latest information concerning Meteors, Shooting Stars, and the results obtained by the Spectrum Analysis, are likewise given. Star maps form a noticeable feature in this work, enabling the teacher and student to get on without either globes or charts. Although farm operations are not to be guided by moon or stars, yet the farmer may well aspire to know something about

> "The spacious firmament on high,
> With all the blue ethereal sky
> And spangled heavens, a shining frame;"

and here within small compass, and at a trifling cost, may be found a choice store of knowledge in regard to these familiar and attractive objects.

Lessons on Political Economy. By J. T. Champlin, President of Colby University. New York: A. S. Barnes & Co., 111 and 113 William Street.

Let no "loyal Briton" suspect us of Annexation tendencies in noticing this work, for it does not treat of republicanism, or of any other particular form of government, but deals with subjects common to all civilized nations, as will be seen by a glance at the following summary of its contents:—"Wealth, and the means of creating it; value, cost, price; capital, and its forms; labour, its forms and results; division of labour; aid to production from natural agents; stimulants to labour; taxes; profitable and unprofitable labour; business; exchange; money, metallic and paper; banks and banking; credit; finance; interest; land and rent; profit and wages." A very useful book for the farm library.

Violet Keith. An Autobiography. By Mrs. Ross. Montreal: John Lovell, St. Nicholas Street.

This is a Canadian publication, and from the pen of a Canadian authoress. As a native product, we are quite proud of it. It is well written, paints very graphically scenes from real life, and has an air of truth and actuality about it which cannot fail to interest and impress readers of every class. It is a capital book for the fireside and chimney corner, these long, chill nights which November is ushering in. It is wholesome in sentiment, inculcates lessons of true wisdom, and is emphatically a *family* book. It is winning golden opinions from the editorial fraternity, and will doubtless have, as it deserves, a wide sale.

The "Rural American."—The proprietors of this excellent agricultural journal, one of our most valued exchanges, have recently effected several considerable alterations in the conduct of the paper. Some time ago the office of publication was removed to New York City, and the editorial office to the City of New Brunswick, in New Jersey. On the first of October a double number was issued, with the intimation that it would in future be published once a month only, instead of fortnightly, and that its size would be doubled. We think this an improvement. The first monthly number is full of valuable matter, and is an excellent specimen of a practical and interesting journal of agriculture and rural affairs.

Agricultural Intelligence.

Annual Sale at Moreton Lodge Farm, Guelph.

The sale of Mr. F. W. Stone's stock, which came off on the 15th ult., was less extensive than usual, no cattle being offered. The lots consisted of Cotswold and Southdown sheep, and Berkshire pigs. There was a fair attendance of buyers, including a number of prominent stock breeders from various parts of the province, but the bidding was by no means spirited, and the sale can hardly be called a very successful one.

Fifteen Cotswold rams were sold. Those put up first, including one or two imported rams, did not fetch good prices, the figures paid for each running from $28 to $34. Prices got better when the one shear lambs were brought out, two being sold at $60 each, one at $51, one at $50, and the others ranging from $50 down to $31. No Cotswold ewes were sold. The bidding on the Southdown rams was not brisk, and only two were sold—a two and a one shear—for $23 each. Some Berkshire spring pigs were sold at from $14 to $16 each, and a sow for $22. Nearly all the sheep were sold to breeders outside of the county.

☞ The Swedes are populating Kansas. One party is purchasing 26,000 acres.

☞ The "Township of Tuckersmith Agricultural Society," South Riding of Huron, has been incorporated.

☞ With all the drawbacks, the present crops in the United States are the largest in many years. Such is the report of the Department of Agriculture, at Washington.

☞ The price paid for flax in St. Mary's is $12 per ton. The *Argus* says that at this price the crop has proved most profitable, and the success attending flax growing will probably induce its cultivation to a still greater extent next year.

☞ The Agricultural Society of North Crosby, in the east division of the south riding of Leeds, having complied with the provisions of the Act, has been incorporated as the "Township of north Crosby Agricultural Society."

☞ The aggregate attendance at the late New York State Fair, at Rochester, is estimated at 68,400. The largest attendance at any State Fair in the State was that held in Rochester, in 1851, the estimate for which is 95,000. The smallest attendance was 27,000 at Saratoga, in 1853.

☞ It is estimated by the Brampton *Bonner* that there are over 100 acres of land under hops in the township of Esquesing. The yield the past season was about 600 lbs. per acre, as against 800 last year; the price last year was from forty to fifty cents per lb., while it is as low as fifteen cents per lb. at the present.

Failure of the Hop Crop in Wisconsin.—The success of hop-growing, and the high prices realized in 1867, gave a great impetus to this branch of agriculture in Wisconsin. It was followed by many even to the extent of neglecting the more important cereals; and the failure of the hop crop this year has entailed heavy loss on thousands both of farmers and merchants.

Prize Wheat.—The prize for fall wheat annually offered by the Canada Company, requires that twenty-five bushels shall be placed at the disposal of the Association for distribution. The following gentlemen, representing, we presume, agricultural societies, have obtained samples:—Phillip Armstrong, West York; Jacob Young, Haldimand; William Beattie, South Leeds; G. J. Miller, Niagara; Josh. G. Fisher, N. Huron; P. M. Shannon, South Bruce; Hugh Love, South Huron; F. W. Stone, Guelph; Hon. Asa A. Burnham, Northumberland; Wm. McCann, North Oxford; Jas. Nimmo, Addington; Chas. Ross, East Elgin. The Canada Company retains two bushels, and, strange as it may seem, about two bushels are carried away every year by visitors at the exhibition.

West Riding of York and Vaughan Show.—On Tuesday and Wednesday, Oct. 20th and 21st, the Union Exhibition of the West Riding of York and Vaughan Agricultural Societies was held in the town of Berwick. Notwithstanding very unfavourable weather, there was a large number of visitors, amounting to as many as 6,000. In the dairy department there was more than usual competition, and the show of implements was specially deserving of notice. Mr. Abell's extensive works are established in the neighbourhood, and this enterprising manufacturer contributed largely to the implement department of the exhibition. Altogether the show was a success.

Algoma Fall Show.—The first exhibition of the Algoma Agricultural Society was held early in October, at Sault Ste. Marie. The Secretary of the Society, in a letter to the *Owen Sound Times*, gives a glowing account of the affair. The grain, roots, and vegetables, he says, were particularly fine, "being much over the provincial average in weight, and every sample of cereals exhibited over the standard weight per bushel measure. The prize oats, four pounds over; barley, five; wheat, six." There was also an especially excellent display of "Algoma's pride," potatoes. The show of stock was of course not large, but creditable. We congratulate the Society on the success of their first agricultural exhibition, and their laudable efforts to bring before the notice of their countrymen, and neighbours in Michigan, the resources of the District of Algoma.

Oxford County Agricultural Exhibitions.—R. W. S. writes that "The exhibitions throughout the County of Oxford have excelled anything of the kind ever seen here before. Upwards of $5,000 have been distributed in prizes (while only $1,400 were received from the Government grant). This is exclusive of expenses attending such distribution. This speaks well for the rising generation of farmers, and shows that a deeper interest is felt in agricultural progress than formerly. It is computed that 6,000 persons attended the North Riding Exhibition, held at Woodstock. 3,500 passed through the Hall, and $181 were taken from non-members. There were nearly 2,000 entries. In grain and dairy produce the show exceeded, by far, the same departments of the Provincial Exhibition. The first six Provincial Exhibitions did not equal the North Riding Show in the number of its entries. The same may be said of the South Riding, which was about the same in the aggregate. Several of our Township shows had 1,400 entries each, and one of them has nearly 500 members. Grain never was better. Roots and fruit are better than was anticipated. Horses and cattle are low in condition. Sheep are as good as usual at the annual exhibitions."

Aldborough Agricultural Show—The Secretary of the Aldborough Agricultural Society has sent us a letter and clipping from the *St. Thomas Home Journal*, giving an account of the Aldborough Show, with the list of prizes. We regret that it is quite impossible to find room for the whole report. Our present issue is already made up, and half the next will be occupied with the Provincial Prize List. The Secretary has our thanks, nevertheless, for his communication. We can only insert the following extract from the printed account referred to:—

"The last agricultural show of the season in this County was held by the Aldborough Society, at Rodney, on Friday, the 16th. It would almost seem as if the Aldboro' people had purposely held back till the last, in order that they might have an opportunity of surpassing all others. But whether this charge of intent can be supported or not, it must at any rate be admitted that Aldboro', with all its drawbacks, its sand farms and chestnut groves, came out No. 1 in the show list this year. No other Society in the two Ridings made so many entries; no other Society sustained so fair an average in the quality of the articles shown.

The entries in each class were as follows:—Horses, 139; Cattle, 92; Sheep, 67; Swine, 31; Poultry, 28; Grain and Seeds, 133; Roots and Vegetables, 69; Horticulture, 38; Dairy, &c., 57; Home Manufactures and Implements 105; Ladies' Work, 84: making a total of 843."

Meeting of the Fruit Growers' Association.

The regular autumn meeting of the Ontario Fruit Growers' Association was held in the Town Hall, St. Catharines, on Tuesday, 13th October, 1868. The meeting was organized at 11.30 a. m.; the President, W. H. Mills, Esq., in the chair. A large number of members were present from different parts of the country, almost all, however, from west of Toronto, and a fine display of fruit was exhibited.

After the reading of the minutes of the last meeting by the Secretary, D. W. Beadle, Esq., the first order of the day was taken up for discussion, viz:—What *varieties* of apples are best for market?

Mr. O. T. Springer, of Wellington Square, being first called upon for his opinion, said that he shipped by boat to Montreal the Early Harvest and Red Astracan, followed by the Primate and Early Strawberry; they arrived in good order, and realized the highest market price. He found the Early Harvest to be liable to spot and crack, and would plant the Red Astracan in preference. He thinks the Primate a good apple for shipping, a good bearer, firmer than the E. Harvest, and a better bearer than the E. Strawberry; can also be shipped a little greener. He values the Fall Pippin higher than any other autumn apple, but this variety requires high cultivation to secure fair, perfect specimens, else the fruit is apt to be gnarled and spotted. The Ribstone Pippin he considers very valuable. The Snow is apt to spot badly unless highly cultivated, but when perfect commands the highest price. His orchard is between Wellington Square Station and the Lake, of a sandy soil, under-drained, with good natural drainage also; it is about twenty years old. He top-dresses in the autumn with barn-yard manure, and gives it ashes occasionally. He finds the Porter very good, but it requires to be picked before it is perfectly ripe. A red-colored apple will always sell more readily than a green or yellow one; besides, it does not show a bruise so soon. Among winter apples he has the R. I. Greening, Roxbury Russet, Baldwin, Northern Spy, and Golden Russet of Western N. Y. He finds the R. I. Greening a very valuable variety for home sale and shipment, hardy, and bearing an abundant crop in alternate years; the Roxbury Russet one of the most valuable, because it keeps so long, even till June. It is a sparce bearer and slow grower. The samples he has obtained have been fine and of sound quality. An objection to it is that the fruit is very subject to the ravages of the codling worm—more than any other winter fruit. The Baldwin has not been altogether satisfactory; it bears well every other year, but is very subject to worms. Out of eight barrels last year, there was one of bad fruit from this cause. It kept till February, but was often rotten at the core when apparently sound outside; when grown on clay it was better. It is a firm, sound fruit, and does not show bruises; hence its value for shipping purposes. The Northern Spy is the most valuable apple he grows; it puts forth its leaves and blossoms seven to ten days later than others, and thus escapes the late frosts; it grows vigorously anywhere, but requires high cultivation to secure the best results. In pruning, all the centre shoots should be cut out, in order that the fruit may colour well, without which it has no good flavour. It should be carefully handled for shipping, as the skin is thin and the flesh delicate. The tree bears every year, but is slow in coming into bearing, not beginning till it is from eight to ten years old. It keeps well when preserved in an even temperature, as late as till June. It hangs well on the tree, and commands a higher price than any other winter apple. The Golden Russet he finds not particularly valuable, perhaps because its situation in his orchard is not favourable; yet it is hardy, and a free bearer. It keeps well, ships well, and bears rough treatment, but withers when long kept.

Mr. C. E. Woolverton, Grimsby, said that the Sweet Bough and Golden Sweet yielded more fruit than the Early Harvest or Red Astracan. The Spitzenberg is the best apple for foreign market that he has, especially in Glasgow, Scotland.

Mr. A. M. Smith had shipped the Early Harvest to Montreal, and they arrived in good order. He considers this variety as good as any, and more profitable than the Red Astracan, because it bears better and ripens more evenly. The Sweet Bough is a good early market apple. The Duchess of Oldenburg is a productive, valuable and handsome apple, and commands a high price. The Fall Pippin and Ribstone Pippin are the best fall apples for market. The Black Detroit sells well; its quality is not equal to the Fall Pippin, nor is the tree a better bearer, but its colour makes it attractive to buyers. The Snow does well with him. He thinks the N. Spy a better apple than the Baldwin, but the latter is more profitable, being more productive. The Spitzenberg produces about two-thirds as much as the Greening. The Roxbury and Golden Russets are very long keepers.

Mr. R. N. Ball, of Niagara, said that for foreign market the Newtown Pippin commands the highest price. The Ribstone Pippin is very valuable, and bears every year. The Baldwin is very profitable. The Golden Russet is not quite as long a keeper as the Roxbury Russet, but is a very valuable market fruit. The Rambo spots very badly with him; his is a clay soil; it does better on mixed clay and sand. (Mr. Morse said that it did well on sand with him). The Greening brings a less price in foreign markets than any other variety—from two to four shillings less than the Spitzenberg. The Roxbury Russet does not take in foreign markets. The Lady apple commands a fancy price. The Newtown Pippin requires a clay soil and high cultivation. He ranks the Green Newtown Pippin first, Ribstone do. second, Baldwin third, for market. The Swaar is too uneven in size. The King of Tomkins Co. is good. Duchess of Oldenburg promises to be a very valuable market apple. The English Golden Russet is hardly as good a bearer as the E. Spitzenberg. The American Golden Russet does not shrivel when kept barreled tight.

Mr. A. Morse, Smithville, said that the Early Harvest is a good apple for local demand, and is a regular bearer; the Sweet Bough and Red Astracan come next; after these the American Summer Pearmain comes in before the fall varieties, and sells readily; it bears every other year. The Fall Jennetting and Duchess of Oldenburg take well and sell well. He thinks highly of the Dutch Mignonne, as it is a prolific bearer, of showy appearance, and sells well; the tree is very hardy; the fruit keeps till the first of January. The Golden Russet has never failed to yield a good crop. The Spitzenberg, Baldwin, N. Spy, Greening, and Twenty-ounce Pippin, all do well. The Talman Sweet bears indifferently with him; it may be owing to its position in a dark river bottom soil. None of the trees on this bottom do as well as those higher up. The Snow does not succeed well with him. The King of Tomkins Co., Cayuga Red Streak, Jersey Sweet, Ribstone Pippin, Gravenstein and Alexander, thrive and bear well. He showed a new large green-coloured cooking apple, ripe in October and November, a good bearer, with crops every year.

The Hon. D. Reesor, Markham, said that he finds the best early apple is the E. Harvest. The Red Astracan is not quite so good in quality. The Fall Pippin and Blenheim Orange are the best autumn apples. The Twenty-ounce apple and Cayuga Red Streak are good. The Snow is sometimes scabby, yet the same tree, with the same cultivation, may next year yield fine fruit. The Esopus Spitzenberg stands highest among his winter fruit. The young trees in the nursery are sometimes killed by the winter, while in the same neighbourhood this variety grafted on the top of standard seedlings has endured the winter well and borne good crops of fruit. The Baldwin is a fair bearer, but the fruit is not so perfect or as fine in flavour as the E. Spitzenberg; it has not, however, had as long a trial with him. They have not had very severe winters since the Baldwin has been fruiting in their neighbourhood. The R. I. Greening is an excellent bearer and a favourite fruit; taking its qualities together, productiveness, flavour and keeping powers, it is much esteemed. The Am. Golden Russet is a good bearer, keeps well, and is of good quality. The Ribstone Pippin on good soil, and when well cared for, bears well; its flavour is usually good, but he has seen something of watercore and dry rot in it. Has seen the dry rot also in the Baldwin, even to a greater extent than in the Ribstone Pippin. The Snow [illegible], on [illegible] clay soil, sixteen miles north of Lake Ontario, [illegible] to fine perfection; when sent to Glasgow five years ago it brought from $8 to $10 per barrel.

Rev. R. Burnet, Hamilton, remarked that the Ribstone Pippin was late in leaf and flower, and hence frequently escaped the later frosts of spring. The apple was generally agreed upon by those present to be the best variety of all when well cultivated, the N. Spy ranked next.

Mr. A. Leslie, of London, recommended the Red Astracan and Duchess of Oldenberg; the Early Harvest was apt to get spotted and wormy. The Sweet Bough succeeds well. He values the N. Spy among the first of the winter apples; the Baldwin he considers tender; the Spitzenberg variable; the R. I. Greening and Golden Russet good; the Snow succeeds well and is a good market variety. The Talman Sweet bears heavy crops on all soils, but is not appreciated; Esopus Spitzenberg not a general bearer. He exhibited a seedling apple that keeps well until January 1st, and even till March, but then has lost its flavour; it is good both for cooking and dessert.

Mr. O. T. Springer exhibited a new seedling; it was a medium-sized, showy apple, a good dessert fruit, keeping until 1st of March, from a vigorous growing tree, very hardy, and a good annual bearer; the flavour of the fruit is sub-acid, sprightly, juicy.

Picking and Packing for Market was the next subject for discussion. Mr. R. N. Ball, Niagara, being requested to describe his method, said that apples should be picked as soon as mature, and then kept in a heap till they sweat, which he considered far better than putting in barrels at once, as it prevented shrivelling. For appearance they should be placed stem down. The barrel should be shaken gently during filling, filled up to the top, and then pressed down about an inch and a half to admit the head, using a pressure of five or six hundred lbs. Only first-class apples need be sent to Europe; any others will prove unremunerative. Two grades might be sold in Canada, but he considered second-class fruit only fit for cider. By a first-class apple he meant one that is free from worms, blotches, and bruises, carefully picked off the tree by hand, and of the average size and form of its kind. He preferred using baskets to sacks for picking, reaching tall trees by means of ladders. When filled and headed the barrels should be laid on their sides.

Mr. Latshaw, of Paris, said that each variety of apple has its own season of maturity, and should be picked in accordance with it. He prefers to dry weather to pick, sort, pack, press and head up in barrels at the tree at once, and all on the same day, leaving the barrels out of doors as long as the weather is fine; they will then keep well, and can be shipped to Egypt or anywhere else. This is his practice and experience. He has put up in this way from one hundred and fifty to two hundred bbls., and shipped them to New York, where they have come out perfect. The fruit should, of course, be picked dry, and not opened till it is wanted; and only varieties that keep should be put up.

Mr. Stewart, of Goderich, said some Baldwins were put up in a rough way in barrels, sent to Glasgow, and then forwarded inland some one hundred and fifty miles by rail, and they arrived safe and sound. He said they should be well pressed from a round heap above the barrel to flat.

Mr. Ball said that first-class tight barrels, made with split staves, should be used, and then there would be no shrinkage.

Rev. C. J. S. Bethune, of Credit, on request, gave a very clear and interesting account of the insect which was at work upon the trunk of a young apple tree, brought to the meeting by Mr. Smith, of Grimsby. It was the Buprestis borer, *Chrysobothris femorata*.

The meeting next proceeded to the consideration of Plums,—The best varieties, and the best methods of preventing the black-knot, curculio, and other insects.

Mr. Lewis, of Niagara Falls, stated that he had been for some time trying to grow plums, but they always dropped off when half grown. He had tried throwing lime into the tree, but it did no good.

Mr. Martin, of Cayuga, found that they did better on clay than sand, and better in gardens than on lawns; the green varieties suffered less from both black-knot and curculio than the purple. He has plenty of fruit, and has taken but little pains with his trees.

Mr. R. N. Ball stated that a friend in Hamilton, who had manured his plum trees with tobacco stems and refuse from a factory, had not been troubled with the curculio since.

Mr. Read, of Port Dalhousie, cuts a semi-circular notch in the end of a long stick, lines it with an old India-rubber shoe, and with it jars his trees, placing under them a sheet, split half-way up the middle to admit the trunk of the tree, and with slats nailed to

the ends to keep it from moving about. He jars the trees regularly every morning from the first formation of the plum until the stone hardens, and destroys every curculio and plum that falls upon the sheet. By the aid of two of his children he performed the work very quickly and with little trouble. He always has a good crop now, and saves also his nectarines and apricots in the same way.

Mr. Ball finds that a few good sharp-set hogs in the plum orchard keep the curculio under.

Rev. Mr. Bethune thinks it now well established that the black-knot is produced by a fungus, and not by an insect, and that it can be kept under by prompt amputation. The insects found in it merely make use of it as a convenient abode, and are not the authors of the trouble. He considers that the only effectual remedy for the curculio is that described by Mr. Read, viz., jarring them off by sharp blows into a sheet spread below, and destroying those that fall by fire or boiling-water; also gathering up the fallen fruit as fast as it falls, and destroying it with the living larva inside. He recommends, where practicable, keeping hogs in the orchard, who will destroy not only the curculio but also the codling worm.

Rev. R. Burnet has found that the curculio very seldom travels much, and that one may be quite sure of saving the fruit in his own garden by this jarring and killing process.

Hon. D. Reesor wished to caution the public against turning too large and too hungry hogs into orchards, as he has known an entire young orchard badly injured by the hogs eating the bark of the trees.

Mr. John Freed said that he had put a quantity of tobacco stems under his plum trees, six inches deep, also some in the branches, but the curculio did not seem to be inconvenienced by it in the least; one of his neighbors keeps his hogs in his orchard, and finds that they do good service.

Mr. J. Arnold, of Paris, whitewashed the ground under several of his trees with a thick coat until it formed a crust; the curculios did not trouble those trees, but affected all the rest.

Mr. W. H. Mills, of Hamilton, said that the brightness of the white surface kept the curculio from the trees so treated and drove them to the others, and that if Mr. Arnold had whitewashed beneath all his trees he would have found that the curculio would have attacked all alike. He himself found nothing equal to the jarring process.

Hon. D. Reesor enquired whether salt under the trees would kill the curculio. Mr. Beadle replied that the experiment had been tried, and that the grub was seen to creep through several inches of salt uninjured.

With regard to varieties, Mr. W. H. Mills thinks highly of the Columbia as a cooking plum; it ripens unevenly, and is, therefore, a long time in use; the tree is hardy. Reine Claude de Bevay is too late with him; Jefferson is a fine plum; Victoria is large, better than Pond's seedling, Guthrie's Apricot plum was sent by Mr. Saunders, of London; a very fine flavored plum.

After an adjournment of an hour the meeting reassembled at 7 p. m., and proceeded to the discussion of the best variety of GRAPES.

Mr. A. M. Smith thinks the Adirondac the best earliest grape; his vine has endured the winter so far well; it is a good bearer, and is earlier than the Delaware. Mr. Martin agrees with him.

Rev. R. Burnet, Mr. Holton, and Mr. Freed have not the Adirondac; with them the Hartford Prolific is the best and earliest grape.

Dr. Smith, of Komoka; Mr. Stewart, of Goderich; Mr. J. B. Lewis and Mr. A. Leslie, considered the Delaware the best.

Mr. Farrell, of Cayuga, finds the Delaware and Rogers' No. 5 ripen about the same time; he prefers the latter.

Mr. C. Arnold finds Rogers' No. 3 better and earlier than the Hartford Prolific, and with him the best earliest grape.

Mr. Read considers the Delaware the best earliest, and the Laura Beverly far superior to the H. Prolific, of a better flavor than the Concord, and equally hardy.

Mr. Jas. Taylor, of St. Catharines, thinks highly of Rogers' Hybrids, yet he finds some variableness in them. No. 33 is not as fine this year as last. The Laura Beverly is so like the Crovelling that it is not easy to say that there is any difference.

Mr. Morse, of Smithville, has the Concord, H. Prolific and Delaware; of these the last is the earliest—it was nearly ripe on the 30th August.

Hon. D. Reesor knows only the H. Prolific and Delaware of the early kinds; he prefers the latter. In his neighborhood (Markham) these grapes are covered in winter.

Mr. Bauer, of Hamilton, places the Delaware first; he has tried it seven years in all exposures, both North and South, and has had them ripen on the first of September.

Mr. W. H. Mills has a few varieties:—Delaware, Rogers' Nos. 3 and 4, and some others. He considers the Delaware the very best earliest variety; Rogers' No. 4 ripened the same time as it, and a week earlier than No. 3.

The next topic was the *best varieties for market.*

Dr. Cross was at Hammondsport, N. Y., where a large business is done in marketing grapes; only Catawba and Isabella are grown there, of which the latter is found the most profitable. He himself finds the Isabella on his own grounds more profitable than the Concord.

Mr. Arnold thinks we know but little on this subject; he prefers Rogers' 4 and 15.

Mr. Read considers the Concord and Ontario to be the most prolific; the latter sells most readily on account of its large size. Mr. Taylor confirmed this opinion respecting the Ontario.

Mr. Martin packed the Sweetwater tightly with severe pressure in a box, and sent it to New Brunswick in good order.

Mr. Lewis sold his Isabellas on the vine at four cents per pound; thinks he could have obtained ten cents per lb. for Delawares.

Mr. Stripp finds the fruit dealers do not think much of the Isabella when grown in this Province, as it does not ripen well enough. The Concord ripens well and sells well.

Mr. Freed found the H. Prolific sell better than the Concord. It was generally considered that a large, showy grape sold better than a smaller and finer variety.

The *soils* best adapted for the several varieties were next considered.

Mr. Smith has a sandy loam, on which the Concord does best.

Dr. Cross has a clay loam, well under-drained, on which the Isabella does best, the H. Prolific next; the Delaware fails utterly. They were heavily manured when first planted.

Mr. Farrell said that his best vines grew on a light soil, but the Delawares did better on a soil somewhat clayey.

Mr. Taylor has a clay loam, on which all do well. The Diana succeeds, and he values it very highly. He thinks we are in danger of manuring too much. Allen's Hybrid is his best white grape, but it is subject to mildew.

Mr. Stewart has a light soil, on which the Delaware and Concord do best.

Mr. Arnold's soil is a mixture of clay and sand with a limestone bottom. The Delaware and Diana do not succeed, but some of Rogers' and his own Hybrids do very well.

Mr. Read's soil is a sandy loam, on which all seem to do well; he has a piece of clayey loam, on which he finds his best specimens. He prefers a rather stiff loam.

Mr. Martin has a strong loam; he thinks that those kinds which make a vigorous growth and have a large leaf do best on clay.

Hon. D. Reesor has a stiff clay loam, on which he has the Delaware of a fine quality, though the quantity has not been large nor the growth rapid. The Concord grows pretty well, but does not bear as much as the Isabella.

Mr. Bauer has a black clay loam, on which the Diana and Delaware do well and are free from mildew; they seem to ripen as early as in Ohio.

Mr. Lewis has a black loam, bordering on clay; all varieties do well.

Mr. Stripp found those Delawares on gravelly limestone soil sweeter than those on deep sand. The Concord when on limestone gravel produced the largest crop.

Pruning and Training of Grapes was next in order for discussion.

Dr. Cross thought that every vine required pruning adapted to its growth, soil, and habit, and that the heaviest pruning should be done when the leaves are off, doing but very little in the summer.

Mr. Farrell succeeded best by a rigid system of pruning.

Mr. Taylor tries not to leave too much wood, but to prune enough to give good well-ripened wood.

Mr. Read trains to a single stake, and prunes according to the age and variety of the vines, leaving buds for fruit accordingly. He does not pinch or prune in summer, but in the fall.

Mr. Martin does not prune in summer.

Mr. Bauer does no summer pruning beyond keeping the stock free from shoots or suckers up to eighteen inches above the ground.

Mr. Lewis prunes just after the vine comes out in leaf, as in winter pruning the cane dies back two to four inches from the place where it is cut; he does no pruning in summer.

Mr. Stripp thought the Diana as vigorous as the Concord, and requiring to be pruned longer than the Delaware.

The meeting then proceeded to taste and discuss the seedling grapes exhibited by Mr. C. Arnold and Mr. Read. Of Mr. Arnold's varieties, No. 8 was almost unanimously considered the best table grape; Nos. 5 and 16 being next in estimation. No. 16 was deemed a fine wine grape by Mr. Bauer; while the producer esteemed No. 2 above the rest. The only draw back to them was their want of size, which will probably be obviated when they are cultivated in a more favorable soil and climate than that of Mr. Arnold's garden. On motion the following resolution was unanimously adopted:—

"This meeting begs to tender to Mr. Arnold a vote of thanks for exhibiting his new Hybrid Grapes, and earnestly recommends them for trial in all parts of the Province."

Mr. Jas. Taylor stated that he had fruited No. 1, and found it much better in his grounds at St. Catharines than the sample shown by Mr. Arnold, grown at Paris.

Respecting Mr. Read's new grapes, the verdict of the meeting was strongly in favor of his Silver Cluster, which was considered to be of a fine delicate flavor of high value. His Hattie and Dominion were also much commended.

Before the close of the meeting the Committe on the fruits exhibited reported as follows:—

"Your Committee appointed to inspect and report upon the fruits before the meeting, beg to present the following:—

Rev. R. Burnet—1 variety of pears, 5 grapes, 9 apples.
Hon. D. Reesor—2 pears, 12 apples.
D. W. Beadle—12 grapes.
W. H. Mills—3 pears, 5 grapes, 3 plums.
W. Saunders—2 pears, 4 grapes, 5 plums.
A. Leslie—1 seedling apple.
W. Holton—22 pears, 8 apples, 1 quince, 3 crabs.
J. Freed—3 pears, 6 apples, 1 quince, 1 crab.
Mr. Latshaw—8 apples.
A. Morse—1 seedling apple.
W. H. Read—14 grapes.
C. Arnold—4 pears, 5 seedling grapes, 6 apples, 2 raspberries.
Wolverton and Smith—6 pears, 5 apples, 2 peaches, 2 quinces, 1 crab.
O. T. Springer—8 apples.

The foreign grapes exhibited by Rev. R. Burnet, and grown by him in the open air, were remarkably fine, particularly the Sweetwater, and a variety called the Hungarian Princess.

In apples the Committee remarked fine specimens of King of Tompkins Co., N. Spy, Boston Russet, Fameuse, Baldwin and Waggoner.

In pears, large well-grown specimens of Duchesse, Vicar of Winkfield, Howell, Swan's Orange and Washington were observed.

The show of plums, though not large, contained fine specimens of Reine Claude de Bevay, Guthrie's Apricot, Denniston's Superb, Bingham and Columbia.

The display of grapes was large and attractive. Amongst the newer sorts fine bunches of Isabella, Ionn, Rogers' number 19 and Adirondac were noticed, and the new Canadian seedlings of Messrs. Arnold, Read, and Rev. Mr. Dixon attracted particular attention.

Your Committe noticed with great pleasure the hybrid raspberries presented by Mr. Arnold, and from the apparent hardy character of the cane with its free-bearing habit, being now loaded with ripe fruit, they think it must prove valuable.

Several varieties of crabs were on the table, and the attention of your committee was drawn to a promising seedling of our native *Pyrus coronaria*, or wild crab, showing what improvement may be hoped for by a little effort in that direction.

Respectfully submitted,

(Signed) CHARLES ARNOLD,
JOHN FREED,
W. HOLTON."

MEETING OF DIRECTORS OF THE FRUIT-GROWERS' ASSOCIATION.—On the day after the general meeting of the Fruit-Growers' Association, the Directors met at St. Catharines, for the transaction of business. The subject of offering prizes for the best seedling apples of Canadian origin, was discussed, and although action was deferred until a future meeting, it was the opinion of all that it was desirable to secure additions to the present list of varieties of such as were *very hardy* as well as productive, and of fine quality. The subject of an experimental garden, in which new varieties of fruits should be thoroughly tested, was also considered, but no action taken. The next meeting of the Association was ordered to be held at Hamilton, on a day to be fixed by the President.

Report of the Committee on Prize Essays.

TO THE CHAIRMAN OF THE DIRECTORS OF THE FRUIT GROWERS' ASSOCIATION.

SIR,—The Committee appointed by the Fruit Growers' Association of Ontario to judge of the relative merits of the essays on the apple and its cultivation as applicable to the Province, beg leave respectfully to report:

That four Essays were submitted to their consideration, bearing the following mottoes, viz.: "The price of good fruit is eternal vigilance." "*Vive et discе.*" "Here's to thee, Old Appleton." "Fine fruit is the flower of commodities." That all the Essays are of superior excellence, and that your Committee had some difficulty in arriving at a satisfactory conclusion as to which was the best.

That the Committee are unanimous in the opinion that the paper with the motto, "The price of good fruit is eternal vigilance," is fairly entitled to be considered the best treatise on the apple, and its cultivation as applied to the Province, and to it, therefore, they award the prize. That they have come to this decision from the admirable arrangement of the Essay, the correct statements on every particular item passed in review, and for the judicious and exhaustive list of the varieties of the apple, as at present known, adapted to the Province.

They further report in reference to the prize Essay, that they find that about two-thirds of the whole are taken up with the important subject of insect pests—a subject yearly pressing itself on the attention of fruit growers; but they cannot but express the thought that in an Essay of eight octavo pages, or thereabouts, that the amount of matter on this point, valuable as it is, is out of due proportion. And further, that the matter of protection to the orchard is overlooked.

Your committee also report in reference to the Essay with the motto, "*Vive et discе,*" that it possesses many excellencies, and that great good might result from its publication. They much regret that the terms of competition did not allow of a second prize, as they are firmly persuaded that with a few emendations valuable results would follow from its also being given an extensive circulation.

That your Committee return the letters with accompanying mottoes unopened, to be dealt with as the Chairman and Secretary of the Board may deem fit.

All which is respectfully submitted by

WARREN HOLTON,
ROBERT BURNET, } *Committee.*

The Apple and its Cultivation, as Applicable to the Province of Ontario.

PRIZE ESSAY.—BY D. W. BEADLE, ESQ., ST. CATHARINES.

THE SOIL. It is essentially requisite to the health and longevity of the tree and the perfect developement of the fruit, that the soil on which it is planted be perfectly drained. If such a condition does not exist naturally, it must be secured by artificial means; to plant the apple where the roots must be soaked with excess of water during any large part of the year, can only be productive of disappointment and loss. This having been secured, all other questions concerning the soil are of little moment. Any soil that will produce a good crop of corn or potatoes will be found well suited to the apple. No doubt a strong calcareous loam is the perfection of soils for the apple, but with proper care they can be made to thrive well in sandy soils or in a stiff clay. A strong clay is preferable to a light sand. All soils should be thoroughly tilled, and made as mellow as for a crop of grain before planting; and after planting should be kept mellow and loose by cultivation while the trees are growing. Hoed crops are the best for this purpose to raise in an orchard; no doubt the very best way is to keep the ground thoroughly cultivated without any crop, but that is not to be expected of the most of our farmers, who hardly feel able to till the soil so many years without any returns.

TRANSPLANTING. The season for performing this operation is in the autumn after the fall of the leaf, or in the spring before the buds break. In this climate experience seems to indicate the spring as the best season. Care should be taken to preserve the roots from bruises and mutilations in the process, and to settle the earth well about them when filling up the hole. In very stiff soils it is better merely to scrape away some of the surface soil, spread out the roots in their natural positions, and then cover them well with surface soil. The trees should be staked and tied firmly, so that they will not be swayed about by the winds, and in tying them let it be with strips of leather or woollen, and in such a way as not to cut into the bark of the tree. Before the heat of summer comes on, the trees should be mulched, that is, the surface of the ground under the trees, a little farther than the roots extend, should be covered with coarse manure or litter from the barnyard, or with chip manure from the old wood-pile, or spent tan-bark, in short, with anything that will keep out the heat of the sun and keep the soil cool and moist. When transplanted trees require watering, the water should be given abundantly, so that it shall descend to the roots; a superficial watering that only moistens an inch or two of the surface is usually worse than none.

CULTIVATION OF ORCHARD. Until the orchard comes into bearing, it ought to be thoroughly cultivated and the soil kept mellow and loose. There can be nothing worse for a young orchard than to seed it down and let it lie in grass. The trees should be pruned so as to form an open head, and keep the branches from crossing each other or interlacing. A little pruning each year will accomplish all this, and is much better for the trees than a severe pruning once in several years. The best season for pruning in this climate is the month of April. This gives the wound an opportunity to heal over during the growing season. When it is necessary to remove large branches, the cut should be covered with grafting wax or clay, so as to prevent the exposure of so large a surface to the weather. It is a very bad practice to prune late in the fall; the action of our severe winters upon the fresh wounds is injurious to the tree. It pays well to manure the orchard and keep the ground in as good condition as a good farmer will keep his corn fields. A dressing of leached ashes or of lime put on once in three or four years will be found very beneficial. Attention should also be given to all insects found destroying the foliage or injuring the bark or boring into the wood of the tree; the same kind of attention that would be given to a dog found killing your sheep.

INSECTS. The several kinds usually found seriously injuring the apple trees in this Province will be briefly described, and the best known methods of destroying them stated.

THE ROSENDO, (*Macrodactylus Subspinosus*). This little beetle has not as yet been very generally distributed, but where it has appeared in large numbers it has been very destructive. It is about one-third of an inch in length, slender body, entirely covered with thick, short, ashen yellow down. Its slender legs are pale red, and the joints of the feet, which are very long, are tipped with black. They come out of the ground during the second week in June, or when the roses are in bloom, and stay about forty days. At the expiration of this time the males fall on the ground and die, while the females enter the soil, where each lays about thirty eggs, at a depth of from one to four inches below the surface; they then return to the surface, and in a few days perish. In about twenty days after the eggs are laid, they are hatched, and the little grub feeds on such tender roots as it can find, completes its growth in the autumn, at which time it attains to about three-quarters of an inch in length and one-eighth in diameter, and is of a yellowish white color, with a tinge of blue towards the posterior extremity. In October, the grubs descend so as to be protected from the frost, pass the winter in a torpid state, and in the spring return near the surface, where each forms a little oval cell; within this cell the grub, during the month of May, casts off its skin and becomes a pupa, out of which, in the month of June, the perfect beetle comes forth and digs its way out to the surface of the ground. These beetles are, apparently, omnivorous, eating the leaves of roses, rosebuds, pear, plum, cherry, grape-vine and apple, and where they appear in large numbers they are exceedingly destructive. They also seem to defy all the ordinary applications which have been found destructive to insect life, so that the only well attested and reliable plan seems to be that of catching and killing them. Nor is this very difficult, for their habits are so sluggish and they congregate in such masses, that an active boy can catch and destroy a great many in a day. Whenever they make their appearance no time should be lost, for although they may at first only attack the rose-bushes or even the weeds of the garden, when their numbers have increased, as they will, and that at the rate of five and twenty in a season for every pair, nothing that has leaves will be safe from their ravages. If they have seized upon the apple-trees, they must be shaken down, and gathered and burned or put into scalding water. It would be well worth the trouble to sprinkle a bush upon which they are feeding with white hellebore, diffused in water, say at the rate of two tablespoons full of powder to a common pailful of water, well stirred, and [illegible] with a co[illegible] pot, and see whether they can be killed by [illegible] that poison.

THE BORER, (*Saperda bivittata.*) This b[illegible] become very destructive to young orchards, and [illegible] its mischievous work so silently and [illegible] observation that the labour of years has been entirely ruined before suspicion was [illegible] any danger threatened. The perfect [illegible] brown on the upper side, marked with two [illegible] stripes running lengthwise of the body; the under side, the face and the antennæ, and the legs, are white. It is usually about three-quarters of an inch in length. It comes out of the trunks of the trees in June, moving about during the night, and remaining concealed by day among the leaves. During June and July the females deposit their eggs upon the bark of the tree, near the root, at that part usually known as the collar. From the eggs are hatched little fleshy, whitish grubs, without feet, which eat through the bark, and on reaching the sap-wood, excavate a round, smooth cavity, about the size of a dollar, immediately under the bark. It casts out of a hole, which it makes at the bottom of this cavity, its excrements, which appear like very fine sawdust, so that at this stage the presence of this enemy can be readily ascertained by searching for this dust on the ground at the collar of the tree. When it has become about half grown it ceases to cast the dust out of this cavity, and proceeds to fill it up, at the same time boring a passage or gallery upward into the heart of the tree. This gallery is continued upwards of varying length, sometimes not more than two inches, and sometimes twelve inches, and is gradually brought outwards again to the bark of the tree, but not through it. When the grub has completed this gallery, it turns round and returns to that part which is the nearest to the heart of the tree. This part it now enlarges by tearing off the fibre from the walls, and with this fibre carefully and securely closes the entrance, so that if some insect enemy should find its way through the hole in the bark at the collar, into the chamber where it passed the first part of its life, that enemy could not enter the gallery to its present abode. Meanwhile it crowds its sawdust-like castings into the upper extremity of the gallery against the bark, thus at the same time diminishing the danger of attack from that quarter, and keeping its new chamber tidy. Having thus perfected its arrangements, it again turns round so as to have its head upwards, passes the winter in a torpid state, and in the spring, casts off its skin and becomes a pupa, from which in June the perfect insect hatches, climbs to the upper end of the gallery, tears away the fine sawdust, gnaws a hole through the bark, and creeps forth.

It will readily be seen that when several of these worms are at work in any tree, their chambers approach so near each other as to girdle the tree. Unfortunately they are distributed all over our country, and no apple orchard can be considered safe from their ravages; indeed many have been seriously injured, and others wholly destroyed, before the cause of the mischief was suspected.

There are two ways of combating this enemy; the one is a way of prevention, the other one of cure. An application of soft soap (cold-made ropy soap is preferable to the hot-made jelly-like soft soap) to the body of the trees, especially about the collar, if made the first of June, and again the first of July, will preserve the trees from the attacks of this insect. It is well to place a handful in the forks of the branches where they separate from the trunk, to be dissolved by the rain and run down the tree. Young and thrifty trees are the favorite resort of this beetle, and they should be especially looked after and rubbed with soft soap.

The cure, when the grub has once effected a lodgement, is simply to catch and kill him. By examining the bark at the collar in the end of August, scraping the outer surface so as to detect any black spots in the bark, the newly-hatched grubs may be found before they have cut their way into the wood, and be killed. In addition to this search, let this part of the tree be washed with strong lye; this will penetrate into the holes and kill any little grubs that have escaped detection. At the same time search should be carefully made for the fine saw-dust castings, which indicate a larger worm within, and if these are seen the excavation in the sap-wood under the bark should be found, and the occupant destroyed by cutting into his hiding place with a stout-bladed knife or chisel. If he has made a gallery into the heart of the tree, the upper opening may be found usually from three to six inches directly above the chamber in the sap-wood, by sticking a pin into the bark until, by the ready sinking of the pin, the exact spot is known; then, with the point of the knife cut away the bark and pour some of the lye into this hole until it soaks through into the chamber below, thus giving evidence that it has passed through the gallery and met the foe. The search for these saw-

dust cuttings should be renewed at intervals through the fall, winter and early spring, so that none of the borers shall escape.

The Bark-louse (*Aspidiotus conchiformis*). In every part of the Province this destructive pest may be found. Its appearance is that of a minute scale, in form like a muscle or an oyster-shell (hence the name *conchiformis*, shell-shaped), adhering to the bark of the tree. It is about an eighth of an inch in length, colour brown, or nearly that of the bark; and, in the winter and spring, will be found to cover from a dozen to a hundred eggs. Towards the end of May these eggs are hatched, and the young larvæ scatter themselves over the tree. These, after feeding on the juices of the tree, are changed into pupæ, and then into the perfect insect, the males only having wings, and, after pairing with the females, perish, while the females remain on the tree. Their bodies dry up and form the scale covering the eggs that susequently are hatched into another generation. The best remedy for these insects seems to be a sort of paint, made by boiling leaf tobacco in strong lye until it becomes an impalpable pulp, and then mixing with it cold-made soft soap (which is ropy, not the jelly-like soap) until it is about as thick as paint is usually applied, and, with a paint brush apply it to all parts of the tree where these bark-lice are found, before the buds swell in the spring. If this be carefully and thoroughly done, the bark-lice will be surely killed, and the tree will make a thrifty growth.

The Tent Caterpillar (*Clisiocampa Americana*). This enemy of our orchards is also distributed throughout the Province. As the buds of the apple trees burst and the young leaves put forth, the young caterpillars are hatched on some warm damp day, and creeping out of the eggs feed upon the soft glutinous substance with which they are covered. When this is consumed, they move down the limb, and selecting some convenient fork, spin a web or tent. This tent is their place of abode, from which they go in search of food, and to which they return when they are satisfied, all going out and returning together in regular procession. When full grown, they are about two inches in length, color deep black with a white stripe extending along the back, and on each side of this stripe are numerous, irregular yellow lines, and a row of pale blue oval spots. About this time they leave their tents, and are scattered about seeking some secure place in which to spin their cocoons. These are oval, pale yellow, loosely woven, and the meshes filled with a fine powder resembling sulphur. In this cocoon the caterpillar changes to the pupa state, and from the pupa comes forth the moth, which works its way out at one end of the cocoon. The moth is of a dull reddish buff colour, with two parallel, nearly white stripes, or bands, running obliquely across the fore wings. Early in July they are the most abundant, and in a few days after they come out of the cocoons, the females lay their eggs upon the twigs of the trees in a broad belt, usually encircling the twig, and cover them carefully with a thick coating of glutinous matter, which serves to protect the eggs until the next spring, and then become the first food of the newly-hatched caterpillars.

The best method of destroying these insects is to search the orchards carefully early in the spring, before the buds are swollen, and take off all the belts of eggs from the twigs and burn them. These belts will be found from one inch to twelve from the end of the shoot, and as there are about three hundred eggs in a belt, the gathering of these is a very rapid way of destroying the insects. Yet some will probably escape observation, and it will be necessary to pass through the orchard just as the young leaves make their appearance, and search for the webs or tents in the forks of the branches, and by means of a light ladder ascend so as to be able to grasp the nest in the hand, which may be covered with a good thick buckskin mitten, and crush the worms. It will be necessary to go through the orchard several times, until every tent is destroyed and there are not sufficient stragglers left to form another.

There is another caterpillar much resembling the foregoing, which sometimes gets into the apple orchards, and which was very abundant during the past summer (June, 1868) in the orchards between London and St. Thomas. This caterpillar is *Clisiocampa Sylvatica*—the Forest Tent Caterpillar, and may readily be distinguished from its congener by the row of white spots along the middle of the back. Its nests or webs are not placed in the forks of the branches, but along the side of the trunk or of some of the larger limbs, and is of so slight a texture as to be seldom seen. When nearly grown, they congregate together upon the trunk or some large limb when at rest, and may be then killed in a body. Fortunately they very seldom appear in such legions innumerable as swept over the orchards near St. Thomas last June; but when they do come, the only possible method of saving the orchards is to make a business of killing the caterpillars.

The Codlin Moth (*Carpocapsa pomonella*). This little insect does not feed upon or in any way injure the trees or their foliage, but when numerous make sad havock with the fruit, causing it to drop prematurely, and disfiguring it with their burrows and rendering it useless. The perfect insect or moth is quite small, yet one of the most beautiful of a beautiful tribe. The expanded wings will scarce extend over three-quarters of an inch; the fore wings are crossed with numerous grey and brown lines, most beautifully scalloped, giving at a little distance the appearance of a watered silk, and near the hind angle of each of the fore wings is a dark brown oval spot, edged with a bright copper color. The hind wings are a light yellowish brown, as lustrous as satin. During the month of July these moths deposit their eggs in the cavity at the blossom end of the fruit; in a few days these are hatched, and the little caterpillar eats its way into the apple to the core, where it feeds upon the fruit until it has attained its full size, at which time it is of a light pink or flesh color. About this time the fruit usually falls to the ground; the caterpillar soon after makes its way out of the fruit, seeks a hiding place, very frequently under the rough bark of the tree, and here spins a thin silken cocoon, like very fine tissue paper, in which it changes into a chrysalis. Some of these are hatched in a few days, and the moths which come out of them lay their eggs in the blossom end of the fruit that had escaped before, and from these eggs is hatched a second brood of caterpillars, many of which find their way into our fruit cellars in the apples. Yet the greater part probably remain in the cocoon all winter, and do not come forth as moths till the following spring.

The remedy for these fruit eaters is to destroy them. This can be done by gathering the fallen fruit every day and using it in such a way as to kill the caterpillars within, or by allowing swine to run in the orchard and devour the fallen fruit. Also by placing pieces of old carpets or other cloths in the forks of the trees, or twisting a straw band around the trunks of the trees, for the caterpillars will seek these as convenient hiding places and here form their cocoons, where they can be easily found and destroyed. Also by building numerous little fires in the orchard about the end of June and during July, for these and many other moths, attracted by the light, will fly into the flame and be burned.

Varieties.—A large part of the Province is well adapted to the culture of the apple, and with the exception of the very cold and exposed sections, nearly every variety can be grown. Yet the really valuable varieties are not many, and those that are profitable to the orchadist are still fewer. Of course there will be personal preferences, and as tastes vary very much the nurseryman's list is necessarily large, so as to meet the various and often conflicting wishes of his customers; but he is by no means a wise man who plants a tree or two of every variety he finds in the catalogue, and he will wish when they come to bear that his collection was more select. It will usually be found that an orchard for family use, comprising the following varieties, will give good returns in fruit and, furnish a supply throughout the season, namely:—For summer, the Early Harvest and Red Astracan as sour apples, and the Sweet Bough; for early autumn, the Duchess of Oldenburgh; Gravenstein, Primate, and Jersey Sweet; for late autumn and early winter, the Ribston Pippin, Hubbardston Nonsuch, Fall Pippin, and Snow Apple; for mid-winter to March, the R. I. Greening, Northern Spy, Esopus, Spitzenberg, Pomme Grise, and Talman Sweet; for spring, the Golden Russet and Roxbury Russet. With these varieties there will be plenty of good apples until the strawberries ripen.

For market, the most profitable varieties are Red Astracan, Duchess of Oldenburg, Gravenstein, and Hubbardston Nonsuch, ripening in the order in which they are named, for a near or home market; and for shipping, the R. I. Greening, Baldwin, Golden Russet and Roxbury Russet, will yield the largest pecuniary returns.

In the colder parts of the Province, those parts that are removed from the influences of our large lakes and rivers, it is necessary to plant the hardier varieties. The following will probably succeed well in any part of the Province, and will give a succession of really good fruit, namely, the Red Astracan, Duchess of Oldenburgh, Saint Lawrence, Snow Apple, Borassa, Pomme Grise and Golden Russet. If there be any spot so chill and inhospitable that these varieties will not thrive, recourse must be had to the still more hardy crabs, of which the Yellow Siberian, Golden Beauty, Montreal Beauty, Transcendant and Ilyslop Crabs, are the best.

Harvesting.—A little care and expense bestowed upon the gathering and putting up of apples intended for market or for winter use will be found to be a very profitable investment. The fruit should be carefully gathered by hand, so that it shall not be bruised, and then should be carefully sorted. Usually it will be found most profitable to make three grades, the first composed of fair, full sized, perfect fruit; the second of the sound but smaller sized apples; the third of inferior sized, knotty, scabby, wormy or imperfect specimens. The first grade will bring the very highest price, the second may either be kept for home consumption or sold at as much or more per barrel than could have been obtained for the lot unsorted, and the third may pay to make into vinegar. A reputation once obtained for putting up apples according to quality will cause that brand to be sought after, and secure a ready sale at the best prices. A little practice will enable one to barrel the fruit securely, first paving the bottom, and gently shaking down as the barrel is being filled, and pressing in the head with just enough of pressure to keep the apples from shaking in the barrel. After securing the hoops, the barrel should be marked on what was the bottom, so as to be opened from that end, then laid on the side and kept in a cool place, under cover from sun and rain, until put into the cellar or sent to market. A dry cellar, that can be kept as near as possible at a temperature just above freezing, is an excellent place in which to keep apples through the winter.

Thus it will be seen that, in order to secure a good crop of profitable apples, there must be care, watchfulness, labor and judgment exercised from the first preparation of the ground for planting to the final disposition of the fruit; and so the motto of this essay shall be: "The price of good fruit is eternal vigilance."

Mr. Arnold's New Grapes.

The following opinion of these grapes by the Rev. Henry Ward Beecher, who is a thorough judge of fruit, will probably interest some of our readers.

"The box containing five varieties of grapes and two of raspberries came safely, with the fruit in excellent condition. Accept my thanks for your kindness.

"I have duly and properly examined the specimens, and am much pleased with the whole lot.

"The raspberries, for fall bearers, must be valuable. The yellow is not inferior to the Brinckle's Orange in sprightliness, and only a little inferior in richness. The red, too, is tender and juicy.

"Of the grapes I find No. 2, *Cornucopia*, hardly ripe enough, I imagine, to disclose its full merit, slightly foxy, pulp tending to break up in the mouth. I should think good wine could be made of it.

"No. 1, Othello, is good, with just a nice trace of mild flavour, solid meat, or jelly-like, but sweet skin.

"No. 16, Canada. This is a really good grape, melting, sprightly and sweet—I should have said good enough, if you had not sent with it No. 8, Brant, which I think the best coloured grape of the five, and as good a grape as one should desire. The pulp has nearly disappeared in this, and juice takes its place. I can easily imagine that one might strive in vain to choose between 8 and 16, and at last end in taking both.

"No. 5, the White Grape (Antuchon) has unmistakable Chasselas blood in it, and as tender (if I remember Chasselas aright), a sub-acid dash in it—a mere suggestion of sour, which I think finer than Chasselas.

"Judging simply from the specimens sent, if I were shut up to the choice of one, I would take No. 8, but on the express condition that No. 5 should go with it.

"I regard all of them as decided acquisitions, but Nos. 8, 16 and 5 as great horticultural treasures."

New York State Grape Growers' Exhibition.

We extract the following account of the New York Grape Show, of which we have previously given intimations, from the *Boston Cultivator*:—

"The first Annual Exhibition of the New York State Grape Growers' Association, held at Canandaigua on the 7th and 8th of October, was pronounced by distinguished horticulturists the finest show of grapes ever witnessed in this country. We have never before made as large a collection of varieties, and kinds that heretofore have only scantily appeared on exhibition tables, were here in profusion. Eighty-one exhibitors spread their collections on the ample tables, and, including seedlings and a few kinds of hot-house grapes, the varieties numbered something more than one hundred. Judged by this Exhibition, New York would be placed in the front rank of grape-growing States, a position she justly merits, not only by reason of the extent of vine culture within her borders, but for the uniform health and high productiveness of the grape in the same limits. Also in the manufacture of those important products of the

grape, wine and brandy, high excellence has been attained. Both sparkling and still wines and brandies, made in New York cellars from New York grapes, challenge, with unvarying success, those from any other part of our country. And grape culture in this State, as elsewhere in the Union, has but begun. And varieties that are hardy, early and excellent, render it possible to grow grapes in localities heretofore deemed unsuitable. The culture will rapidly widen. One of the most cheerful features of grape culture, made prominent by this Exhibition, is the exemption of the vine and its fruit from serious disease in this State. There is some mildew, but no rot. Frost is the most dangerous enemy.

Among the numerous distinguished horticulturists present, we noticed Hon. Marshall P. Wilder, of Boston; E. S. Rogers, Salem, Mass.; Dr. John A. Warder, Ohio; Patrick Barry, Chas. Downing, Dr. Grant, and A. S. Fuller, New York.

The display of the newer varieties and Seedlings was very interesting. Mr. Arnold, Paris, Canada, sent five or six numbers of his series of hybrids. They are claimed to be a cross between the Clinton and Black Hamburg, and the vines are said to be hardy, and the fruit was sprightly and agreeable. The Lorain grape was shown by Barney & Carlin, of Sandusky, Ohio. This is a white or amber grape, sweet to the taste and handsome to the eye, and a supposed cross between the Isabella and Catawba. Dr. Underhill, of Croton Point, N. Y., exhibited three new seedlings, hybrids, one a cross between the Concord and Black Humburg; another between the Concord and Black St. Peters, and the third between the Delaware and a foreign variety. These bore off the first and second premiums for seedlings. Nothing in this line attracted more attention than the "Eumelan," Dr. Grant's newest grape, which he is pushing into notice. It is a black, early variety, and said to be of better quality than the Israella."

A number of other seedlings are mentioned. Among the exhibitors, Messrs. Ellwanger and Barry showed a collection of fifty varieties, the largest number sent by any single firm or exhibitor. Altogether, the Exhibition was very successful, and will, no doubt, do much to stimulate grape-growing in the country.

The Apiary.

The Honey Season in the United States.

The long drought with which our neighbours in common with ourselves have been afflicted, joined to other peculiarities of the season, has seriously affected the quantity of honey made, and left many stocks apparently insufficiently provided for the coming winter. In reference to this subject Mrs. Ellen S. Tupper says:—

From all quarters come reports of an utter failure of honey the past season. In some places bees that did not swarm have not made enough for winter subsistence—while some that did swarm have starved, and the swarm has perished.

In Southern Illinois—usually one of the best regions for bees—no honey has been stored. In this section the spring was so cold and backward that the bees did nothing until the 16th of June—all my colonies lost in weight until then. From the 15th of June until the 10th of July they gathered faster than I ever knew them to do. From Alsike clover, white clover, and linn, the yield of honey was abundant. All strong colonies in that period of time filled their hives and stored some in boxes—but since then they have barely held their own. Not a colony in my apiary has failed to store enough for winter, and the few now colonies that were made in June have all filled their hives—but surplus honey they have not stored to any amount; I think they have not averaged more than ten lbs. to each hive.

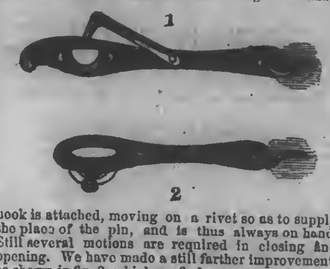
"From different sources the inquiry comes, 'What shall we do with the bees that have not enough to live on? and how can we guard against such a state of things in future?'

The first question each bee-keeper must decide for himself in view of the condition of his own bees and his wish for the future. If it is possible in any case to make one good strong colony out of two or three weak ones, it is the best policy always to unite them. I fear there are cases this year where this can not be done. Bees may be fed on a syrup made of sugar and water with safety; they have been wintered on this and on sugar candy when they had not a pound of honey. To do this to advantage it is best to begin at once. They do better to be fed now than in the winter. Give them constantly all the syrup they will take up from now until near winter weather, then protect them properly, and in spring give them more aid or not as as they need. Colonies that have half enough to winter on should specially be fed. It is poor economy indeed to leave them until starving before you aid them. Give them the syrup through the pleasant fall weather, and they will go into winter in better condition. Whatever course you may take *don't let any bees starve.* If you will not feed them yourself, give or sell them to others who will."

Miscellaneous.

A Convenient Hasp.

Every door which is often used should be furnished with a good self-fastening latch, but it sometimes happens that on outbuildings, which are less frequently visited, and which must be secured with a padlock at night, a common hasp is regarded as sufficient. Often the single strap is placed over the staple, and during the day time is fastened to its place by a small wooden pin, and not unfrequently with a corn cob. Serveral motions must of course be made every time the door is opened, and when it is closed again. Sometimes the pin is lost, and then a search must be made for a stick or broken limb of a tree to supply its place. To obviate this inconvenience a hasp has been contrived and much introduced into use, like that show in fig. 1. A small



hook is attached, moving on a rivet so as to supply the place of the pin, and is thus always on hand. Still several motions are required in closing and opening. We have made a still farther improvement, as shown in fig. 2, which we find a great convenience, and which may be fastened and unfastened almost as readily as the best latch. A projection is made on the lower side, as distinctly shown by the figure, which is dropped into the staple, and holds the door securely. Another staple is placed on the opposite side of the hinges, by which it is as readily fastened open. At night the loop is slipped on the staple and secured by a padlock. This hasp will do for doors that are frequently used or passed many times in a day.—*Country Gent.*

☞ An indignant orator at a lively political meeting, in refuting an opponent, thundered:—"Mr. Chairman, I scorn the allegation, and I defy the alligator."

☞ A small child being asked by her Sunday school teacher, "What did the Israelites do after they had crossed the Red Sea?" answered; "I don't know, ma'am, but I guess they dried themselves."

☞ The annual importation of tobacco into England is fifty millions of pounds. Would it not be better, asks the *Public Health*, if the millions of acres now covered with the tobacco plant were producing cereals, tea, coffee, and cocoa, and thus our food cheapened and our poor better fed?

The Best Things.—The best thing to give your enemy is forgiveness; to give your opponent, tolerance; to a friend, your heart; to your child, a good example; to a father, deference; to your mother, conduct that will make her proud of you; to yourself, respect; to all men, charity.

All Work and No Play.—A clergyman who enjoyed the substantial benefits of a fine farm, was slightly taken down on one occasion by his Irish ploughman, who was sitting on his plough in the wheat field. The reverend gentleman being an economist, said with great seriousness: "John, wouldn't it be a good plan for you to have a stub scythe here and be cutting a few bushes along the fence while the horses are resting a short time?" John, with quite as serious a countenance as the divine himself, said: "See here, wouldn't it be well, sir, for you to have a tub of potatoes in the pulpit, and while they are singing, to peel 'em awhile to be ready for the pot?" The reverend gentleman laughed heartily and left.

Advertisements.

MONTREAL VETERINARY SCHOOL

IN CONNECTION WITH MEDICAL FACULTY OF

McGILL UNIVERSITY,

UNDER THE PATRONAGE OF

THE BOARD OF AGRICULTURE,

PROVINCE OF QUEBEC.

(ESTABLISHED 1866.)

CLASSES.	LECTURERS.
Anatomy of Domestic Animals,	D. McEACHRAN, M.R.C.V.S.
Botany	Principal DAWSON.
Institutes of Medicine (Physiology and Histology,)	Prof. FRASER.
Chemistry (Theoretical and Practical,)	Prof. CRAIK.
Veterinary Medicine and Surgery,	D. McEACHRAN, M.R.C.V.S.

Practical Instructions daily. Dissection during the Session. Lectures commence 12th November.

☞ For Particulars apply to GEO. LECLERC, Esq., Sec. Bd. of Agriculture.

Or to D. McEACHRAN, V.S., 697 Craig St., Montreal.

v5-18-4t.

ONTARIO

VETERINARY SCHOOL,

IN CONNECTION WITH THE

Board of Agriculture, Toronto, Ont.

Established.....1862.

PROFESSORS:

Andrew Smith, V.S., Edin.—Anatomy and Diseases of Farm Animals.

J. Thorburn, M.D., Edin.—Veterinary Materia Medica.

James Bovell, M.D., L.R.C.P., Eng.—Animal Physiology.

Geo. Buckland, Professor of Agriculture, University College—The History, Breeding and Management of the Domesticated Animals.

A. Smith, V.S. and Assistant—Clinical Instruction.

Will re-open for Second and Third Year's Students on WEDNESDAY, the 11th day of NOVEMBER, and the session for First Year's Students will commence on JANUARY 6th, 1869.

For particulars, apply to the Principal, A. SMITH, Veterinary Surgeon, Temperance Street.

Toronto, Oct. 15, 1868. v5-21—1t

100 FARMERS,

Or Farmers' Sons, can secure employment, paying from $100 to $150 per month, from now until next Spring.

Address at once, ZEIGLER, McQUIRDY & CO., Philadelphia, Pa., or Chicago, Ill. v5-20-2t*

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

Destroys the Ticks; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co., 167 King Street East. Medical Hall, Toronto. v4-14-1f

THE BRIGHTEST

ITALIAN QUEENS

IN AMERICA.

Having imported three extra-fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale. Price as usual, $5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. L hive $18—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS, Apiarian, Brooklin, Ontario.

Aug. 1, 1868. v5-15-1f

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

☞ *Repairing of all kinds promptly attended to.* ☜

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 28, 1868. v5-7-tf

$503 IN PRIZES,

PRESENTED BY GENTLEMEN THAT APPROVE OF

"THE FARMER'S ADVOCATE,"

AN AGRICULTURAL PAPER, published by W. WELD, a practical farmer. Terms:—$1 per annum; 10 Clubs of 4, 75c.; to Agricultural Societies, $50 per 100. Send for specimen copy. AGENTS WANTED. Address W. WELD,

v5-21-1t. London, Ontario, D. C.

THE "DEXTER CIRCULAR," after six months' trial, is pronounced the most wonderfully quick method ever discovered to make any matured horse or colt trot fast without the use of a track. One boy made $900 on two common colts; $1,200 on another. Price $1. Address, GEO. A. ATKINS, 2 Dey St., N. Y.

P. S.—"We recommend every farmer's immediate attention to this circular." J. W. Forman, Troy Mills, Iowa; O. J. Breese, Egremont, Mass; Charles Palmer, Hillsdale, N. Y.; John Cildersleeve, Austerlitz, N. Y.; Russel Tremain, Postmaster, Green River, N. Y., and a hundred others. v-5-18-4t

SHORT-HORNED CATTLE

AND

IMPROVED FARM STOCK.

MR. THORNTON, having lived ten years with Mr. Stratford, editor of "Coates' Herd Book," is prepared to buy and ship SHORT-HORNS, or any kind of pure bred farm stock, supply information regarding them, or execute commissions in the old country.

"The Circular," a record of Short-Horn transactions in England, and list of animals for private sale, published at intervals. Price $6 annually. Post free.

JOHN THORNTON,
15 Langham Place,
v-5-18-4t-c.o.t. London, England.

CIDER MILLS.

(H. SELLS' PATENT.)

THE Subscribers are manufacturing, and have constantly on hand, a quantity of these now celebrated CIDER MILLS. They have carried off first prizes wherever exhibited, both in Canada and the United States. We manufacture two sizes, at $20 and $25. Farmers, send in your orders—they will receive prompt attention. Agents wanted all over the Dominion.

v5-21-1t.] Address H. SELLS & Co., Vienna, Ontario.

THE BEST SHEEP MARK YET INVENTED.

IT is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr.,
Sarnia, Ont.

☞ N. B.—AGENTS WANTED. v5-13-1f-c.o.t.

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned. JAMES W. MANN,

v4-20-tf Port Dover, Ont.

Markets.

Toronto Markets.

CANADA "FARMER" Office, Oct. 29th, 1868.

FLOUR AND MEAL.

Flour—The market has been very dull, and though no decided decline in prices can be reported, there has been a want of firmness in the market. The demand for No. 1 Super is very limited. We quote the wholesale prices:—Flour, No. 1 super, $5 10; do. Fancy, $5 35; do. extra, $5 50; do. superior, none. *Oatmeal*, $5; *Cornmeal*, $4.

GRAIN.

Wheat—The market is quiet and dull; spring wheat has been offering freely at $1 12 to $1 14. On the street market the receipts are very light—only 4 few loads come in daily. Street prices range from $1 10 to $1 12 for spring; $1 25 to $1 35 for fall; and $1 14 to $1 15 for midge-proof.

Oats—The market is firm and advancing. Holders now ask 52c. to 53c. for car lots. On the street market 55c. is the ruling price.

Barley—The market has been weak and irregular since our last report, rising and falling in sympathy with Oswego. In general buyers would not offer over $1 35. Holders were asking $1 40. There is at present in store in the warehouses here 145,000 bushels. On the street market only a few loads are now daily brought in. Prices range from $1 38 to $1 40.

Peas—The market is quiet and dull. There were no buyers at over 90c. On the street 90c. is the price.

HAY AND STRAW.

Only a limited supply has come into market, and prices have in consequence somewhat advanced. *Hay* has been selling at from $14 to $18. *Straw*, at from $7 to $11 50.

PROVISIONS.

Dressed Hogs—Coming in freely for the season. The receipts are daily increasing, the high prices of feed making farmers anxious to get rid of their stock as soon as possible. Once the cold weather sets in, it is anticipated that there will be quite a rush on the market. There was a perceptible improvement in the quality of the hogs offering this week over those of last, and an advance in prices has taken place, especially to heavy hogs. Selling off the cars at $6 25 to $6 50; choice heavy lots from farmers would bring $7 to $7 25.

Butter—The business between dealers is gradually lessening now the sharp frosts have cut short the make. We quote common to fair at 19c. to 21c.; fair to good at 21c. to 22c.; choice dairy at 22c. to 24c.

Eggs—The shipping business in eggs for the season is about exhausted. 17c. to 19c. was paid this week.

Bacon—Rather more active in the market. Cumberland cut offering at 11c.; some small sales taking place at that price. There are some enquiries for Liverpool account. A good demand is looked for during the next two months for the English market.

Pork—Very light stocks in the market. Held firm at $24 75 to $25. Chicago mess cannot be laid down here at the above figures. The small stock in this market is principally Chicago.

Lard—In good demand and steady at 15c. The high price of butter tends to keep the market firm.

Cheese—The market continues dull, but the week closes with an improving tendency. The late rise in the English markets has given dealers more confidence. Prices are somewhat firmer. A lot of 100 boxes sold yesterday at 11½c. here.

Salt—Market firm, with however less doing than of late. American is unchanged. Liverpool coarse is worth $1 30 to $1 40. Goderich sells at $1 80.

Potatoes—Are scarce and in demand. Prices have advanced about 10c. during the week, and now stand at 75c. to 80c. per bushel.

THE CATTLE MARKET.

The market has been very active. There has been quite a large attendance of drovers, and competition was brisk. 1st class cattle find ready sale at $6 to $6 50c. per 100 lbs., dressed weight.

There was a large supply of sheep and lambs in the market yesterday. The principal owner was P. Seagrave, drover. He had a drove of 300 head which were purchased in Scott and Maripoes, and sold at prices varying from $2 to $5 each.

Pork—The general range for good hogs has been from $5 12½c. to $5 50c. A great many of the lots offering are poorly fatted, and would not command even the lowest price.

Wool.—There has been a fair business doing in wool, principally, however, in small lots. Canada combing wools are now very scarce in the New York and Boston markets, and holders are getting in these markets the extraordinary high price of 75c. per lb. for all they can supply. It is said that so great is the scarcity of this grade of our wool in the New England States, that many of the mills there which are dependent on us for their supplies have lately been working half time, on account of the difficulty of procuring material. Ordinary pulled wool sells here at from 26c. to 27c.

Hides and Skins—Hides, green, rough per lb., 5½c.; do. green inspected, 7c.; do. cured and inspected, 7½c. to 8½c. Calfskins, green, 10c.; do. cured, 12c.; do. dry, 18c. to 20c. Lambskins, green, 45c. to 50c.; Sheepskins, 60c.

Montreal Markets.—Oct. 28.—*Flour*—Superior Extra, $7; Extra, $6 25c. to $6 50c.; Fancy, $5 87½c. to $6 05c.; Welland Canal Superfine, $5 20c. to $5 21½c.; Superfine No. 1 Canada Wheat, $5 20c. to $5 45c.; No. 1 Western Wheat, $5 22½c.; No. 2 do. $4 90c. to $5.; Fine, $4 25c. to $4 40c.; Middlings, $3 90c. to $4; Pollards $3 to $3 25c. *Wheat*—Canada Fall, $1 30c.; Spring, $1 20c.; Western, $1 20c. to $1 22½c. Peas—Per 66 lbs., $2 lbs. 50c. *Barley*—Per 48 lbs., $1 30c. to $1 35c. *Butter*—Dairy, 21c. to 23½c.; Store-packed, 19c. to 21½c. *Cheese*—Factory 10c. to 11c.; Dairy, 9c. to 10c. *Peas*—$1 10c.

New York Produce Market.—*Flour*—Dull and heavy; receipts, 23,000 barrels; sales, 6,900 barrels, at $6 to $6 60c. for superior State and western; $6 65c. to $7 20c., for common to choice extra State; $6 55c. to $7 75c. for common to choice extra western. *Rye Flour*—Heavy, at $6 to $7 00c. *Wheat*—Dull; receipts, 72,000 bushels; sales, 43,000 bushels, at $1 60c. to $1 55½c. for No. 2 spring; $2 60c. for white State and Michigan. *Rye*—Quiet. *Corn*—Dull; receipts, 15,000 bushels; sales, 39,000 bushels, at $1 09c. to $1 10c. for unsound, and $1 11c. to $1 12c. for sound mixed Western afloat; do. $1 12c. in store. *Barley*—Decidedly lower; receipts, 19,000 bushels; sales, 3,000 bushels Canada West, at $2 20c. *Oats*—Lower; receipts, 50,000 bushels; sales, 87,000 bushels, at 71½c. to 72c. for new Western. *Pork*—Firm at $25 75c. to $28 50c. for mess; $22 25c. for old. *Lard*—Easier at 15½c. to 17½c. for steam; 17½c. to 17¾c. for kettle rendered.

Chicago Markets, Oct. 28, noon.—William Young & Co.'s report.—Wheat—Receipts, 103,000 bus.; shipments, 40,000 bus.; No. 2 wheat dull at $1 13½c.; Corn dull at 78¾c; receipts, 45,000; shipments 48,000. Pork nominal, unchanged.

Contents of this Number.

	Page
THE MONTH:	321
THE FIELD:	
Storing Roots	322
Experiments in Wheat Culture—Drilling and Horse-hoeing	322
The Product of One Weed	322
Utilization of Sewage	322
The Uses of Clover	323
How to Use an Axe	323
The Early Rose Potato	323
Advantages of Under-draining	323
Splitting Rails	323
Destruction of Stumps	323
Bright Barley; Norway Oats; Go to Farming	323
CANADIAN NATURAL HISTORY:	
On Skinning Quadrupeds—(with cut)	324
Fresh Water Pond Fish—(with illustration)	324
Two Serpents and a Cat	324
Wild Ducks	324
STOCK DEPARTMENT:	
The Winter Coat of Horses	325
"Duchess 97"—(with fine engraving)	325
The Oldest Horse	325
VETERINARY DEPARTMENT:	
Colic in Horses	326
Scratches	326
THE DAIRY:	
Dairymen's Association	326
New Milk Cooler	326
POULTRY YARD:	
Pigeons	326
Ontario Poultry Association	326
Duty on Imported Poultry	327
ENTOMOLOGY:	
Cockroaches	327
Mosquitoes in England	327
Water Snakes	327
CORRESPONDENCE:	
Winter Barley—Crops in Hastings, &c.	328
Weaning Colts	328
Alders—Paints	328
Deep Ploughing	328
EDITORIAL:	
Westward Emigration	328
Cattle Disease Convention	329
The Nova Scotia Provincial Exhibition	329
Book Notices—Draining for Profit and Health; The Percheron Horse; American Agricultural Annual; American Horticultural Annual; Fourteen Weeks' Course in Chemistry; Fourteen Weeks' Course in Descriptive Astronomy; Lessons on Political Economy; Violet Keith; The Rural American	329
AGRICULTURAL INTELLIGENCE:	
Annual Sale at Moreton Lodge, Guelph	330
Brief Items	330
Failure of Hop Crop in Wisconsin	330
Prize Wheat	330
Fall Shows	330
HORTICULTURE:	
Meeting of the Fruit Growers' Association	331
Meeting of Directors of ditto	332
Report of Committee on Prize Essays	333
Prize Essay—The Apple and its Cultivation as adapted to Canada	333
Mr. Arnold's New Grapes	334
New York State Grape Growers' Exhibition	334
THE APIARY:	
The Honey Season in the United States	335
MISCELLANEOUS:	
A Convenient Hasp	335
The Best Things	335
All Work and No Play	335

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for ..... NINE DOLLARS.
TWENTY COPIES for ..... SIXTEEN DOLLARS.
FORTY COPIES for ..... THIRTY DOLLARS.
ONE HUNDRED COPIES for ..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director.

VOL. V. No. 22. TORONTO, CANADA, NOVEMBER 16, 1868. POSTAGE FREE.

Official Prize List.

PROVINCIAL EXHIBITION, AT HAMILTON, SEPT. 21st TO 26TH, 1868.

LIST OF PRIZES AWARDED.

HORSES.

CLASS I.—BLOOD HORSES.—(16 ENTRIES.)

JUDGES.—Charles J. Buckland, Guelph; William Hendrie, Hamilton; George D. Morton, Bradford.

Best thorough-bred stallion, four years and upwards, R. R. Waddell, Barton, "Rurie,"	$36
2nd do E. Tench, Clifton	24
3rd do E. M. Peel, Whitchurch, "Jack the Barber"	16
Best 3 years old stallion, Jas. White, Trafalgar	22
Best 2 years old stallion, James White, Trafalgar	14
Best yearling colt, James White, Trafalgar	8
Best thorough-bred stallion of any age, James White, Trafalgar	Diploma
Best 3 years old filly, John Harrison, Etobicoke, York	14
Best mare and foal, or satisfactory evidence that a foal has been raised this season, James White, Trafalgar	22
2nd do	14

CLASS II.—AGRICULTURAL HORSES.—(134 ENTRIES.)

JUDGES.—James Silver, North York; John Henderson, Northumberland West, and Hugh Love, senr., Huron.

Best stallion for agricultural purposes, 4 years old and upwards, Robert Ferris, Richmond Hill	$30
2nd do J. C. Morrow, Adjala	24
3rd do Richard Fullis, Milton	16
Best 3 years old stallion, George Teasdale, London	22
2nd do James Gilmor, Westover	14
3rd do John Dickson, Etobicoke	7
Best 2 years old stallion, James Addison, Richview	14
2nd do John Stalker, Orono	10
3rd do J. O. Stewart, Colborne	5
Best yearling colt, James Jackson, North Dorchester	8
2nd do Alex. McKay, Blenheim	6
3rd do John Hawer, Guelph	4
Highly commended, John Brecken, Appleby.	
Best stallion of any age, Andrew Harvey, Kirkwall	Diploma
Best 3 years old filly, John Hartley, Zimmermau	18
2nd do D. Macfarlane, Aberfoyle	11
3rd do Peter Miller, Binbrook	7
Best 2 years old filly, John Renton, Glanford	14
2nd do John D. Morden, Carlyle	9
3rd do Kenneth McKenzie, Aberfoyle	5
Best yearling filly, that Charles Pilkey, Claremont	8
Best brood mare and foal, or evidence that a foal has been raised, Thomas Armstrong, Vaughan	22
2nd do Robert Beith, Bowmanville	14
3rd do Kenneth McKenzie, Aberfoyle	8
Best span matched farm team, geldings or mares, in harness, Charles Lamb, Walpole	20
2nd do Alex. Coyne, Trafalgar	15
3rd do. Wm. Hall, Washington	10
Commended, John Baker, Bakersville.	

CLASS III.—ROAD OR CARRIAGE HORSES.—(235 ENTRIES.)

JUDGES.—Messrs. James H. Beasey, St. Catharines; J. White, Fergus; J. Freeman, Wellington Square; Wm. May, St. Catharines; Robert L. Osmmel.

Best road or carriage stallion 4 years old and upwards, George Roach, Hamilton	$36
2nd do E. Tench, Clifton	24
3rd do John S. Clarke, Port Dalhousie	16
Best do 3 years old, E. V. Orr, Georgetown	22
2nd do R. Coulson, Eramosa	14
3rd do J. F. Laurason, Troy	7
Best do. 2 years old, Denis Hanly, Tyendinaga	14
2nd do John Habkirk, Tuckersmith	10
3rd do R. & E. Knight, Esquesing	5
Best Yearling colt, P. A. Gregory, St. Catharines	8
2nd do George F. Williamson, Blenheim	6
3rd do Jos Anderson, West Flamboro'	4
Best stallion of any age, George Roach, Hamilton	Diploma
Best French Canadian stallion, Jos. Hancock, Hamilton	30
2nd do George Barber, Guelph	20
Best three years old roadster or carriage filly, Joseph Alton, Nelson	18
2nd do Wm. Lotridge, Barton	11
Best 2 years old filly, H. Rymal, Hamilton	14
2nd do R. Cartwright, Beverly	9
3rd do Aaron F. Land, Stoney Creek	5
Best yearling filly, Henry Hall, Binbrook	8
2nd do N. Hammond, Hamilton	6
3rd do Joseph Anderson, West Flamboro'	4
Best brood mare and foal, or evidence of having raised a foal, Abraham Bradshaw, Ancaster	$22
2nd do E. Barber, Hamilton	14
3rd do Kenneth McKenzie, Aberfoyle	8
Best pair of matched carriage horses (geldings or mares), James M. Davis, Richmond Hill	20
2nd do T. R. Fuller, Stratford	15
3rd do J. Carpenter, Windham	10
Best single carriage horse (gelding or mare) in harness, H. W. Dimon, Charlotteville	10
2nd do John Nickerson, Delhi	8
3rd do J. Featherston, Trafalgar	6
Andrew Flock, Binbrook, commended.	
Best saddle horse (gelding or mare) Wm. Hendrie, Hamilton	10
2nd do E. Irving, Hamilton	8
3rd do Wm. Hendrie, Hamilton	6

EXTRA ENTRIES.

Geo. Barnes, Barton, Canadian Indian Pony..Commended.

CLASS IV.—HEAVY DRAUGHT HORSES.—(60 ENTRIES.)

JUDGES.—J. Haight, Pickering; John Conworth, Paris; and Geo. Bruce, Galt.

Best heavy draught stallion, 4 years old and upwards, A. Harvie, Kirkwall	$36
2nd do J. Dalziel, Chesterfield	24
3rd do A. McTavish, Lobo	16
Best 3 years old stallion, J. J. Fisher, Colborne, imported from England	60
2nd do F. W. Stone, Guelph	14
3rd do A. Doherty, Scarboro'	7
Best 2 years old stallion, B. McConnachie, Orono	14
2nd do R. Ferguson, Galt	10
3rd do R. Beith, Bowmanville	5
Best yearling colt, D. B. McFarlane, Claremont	8
2nd do R. Beith, Bowmanville	6
Best draught stallion, any age, J. J. Fisher, Colborne, diploma.	
Best 3 years old filly, R. Smith, Glanford	18
2nd do J. Brown, Glanford	11
3rd do Silas Inch, Whitby	7
Best 2 years old filly, J. J. Davison, Balaam	14
2nd do J. Morrison, Scarboro	9
3rd do J. Morton, Ancaster	5
Best yearling filly, C. Pilkey, Claremont	8
Best brood mare and foal, or evidence that a foal has been raised, D. McConnachie, Orono	22
2nd do Jas. J. Davidson, Balsam	12
Best span of draught horses (geldings or mares), M. H. Cochrane, Compton	20
2nd do Thos. Kane, Falkland	15

EXTRA ENTRIES.

J. G. Whitney, Connaught, Ohio, "Spanish Jack," 9 years old 10
do do do pair 2 years-year old mules 10

CATTLE.

CLASS V.—THE PRINCE OF WALES' PRIZE.—(14 ENTRIES.)

JUDGES.—J. Ashworth, Scarboro; J. P. Wheeler, Ottawa; Thos. McCrae, Guelph; Charles J Buckland, Guelph; John J. Weir, jr., West Flamboro'; John Dew, West York; L. F. Allen, Buffalo, N. Y.

The best herd of thorough-bred cattle, of any pure breed, consisting of one bull and five females, of any age or ages—Prize presented by His Royal Highness the Prince of Wales—M. H. Cochrane, Compton, Durhams	$60
2nd do by the Association, John Miller, Pickering, Durhams	40
3rd do do F. W. Stone, Guelph, Durhams	20
F. W. Stone, do Herefords, highly commended.	
M. H. Cochrane, Compton, Herefords, highly commended.	
Wm. Hood, Guelph, Galloways, highly commended.	

REMARKS BY JUDGES.—In relation to the awards made in the herd class, the judges have found great difficulty in coming to an accurate conclusion as to the superior merits of the herds submitted to their inspection, on account of the different breeds of animals competing on equal terms with each other. Three breeds were submitted, viz:—Short-horns, Herefords and Galloways, each of them possessing certain eminent and valuable qualities. Such diverse breeds should never be submitted on equal terms for prizes. Each is valuable for certain soils and surfaces of our country. The Short-horns are, beyond question, the most popular, and probably the best breed of cattle with the majority of our stock breeders and graziers. In some districts of country where they prove inferior to the Herefords or Galloways. So with either of the latter breeds each of them the best of their kind. Suffice it to say that we have given our awards under most embarrassing circumstances, we would have hesitated to act on this committee. Under the circumstances, we beg leave, with all due respect to the judgment of the managers of the Board of Agriculture, to suggest that prizes be offered hereafter for the best herd in each of several classes, and that each breed be exhibited separately by themselves, under whatever name they may be recognized. Under permission of the rules of the Board, the Committee, satisfied of the superior excellence of two herds of Herefords submitted to their inspection, would award them as if in a class by themselves, both of equal merit. Also, the Galloway herd, as of fine quality and finish.

CLASS VI.—DURHAMS.—(127 ENTRIES.)

JUDGES.—Prof. Howard, Lansing, Mich.; Prof. M. Miles, Lansing, Mich; G. S. Shaw, Darlington; John Dew, West York; G. Z. Rykert, St. Catharines.

Best bull 4 years old and upwards, F. W. Stone, Guelph, "Grand Duke of Moreton,"	$36
2nd do John Miller, Brougham, "Prince of Bourbon,"	24
3rd do Chas. Tuck, Waterdown, "Young Ethelbert"	16
Best 3 years old bull, Geo. Wood, Downie, "Nelson,"	32
2nd do "Jas. Davidson, Paris, "Young Hero,"	20
3rd do "W. McWilliams, Burford, "Mohawk,"	12
Best 2 years old bull, W. Cellum, Wilmot, "Londen Duke"	24
2nd do John Webb, Everton "Ontario,"	16
3rd do W. Wise, Godsrich, "Frederick 15th,"	8
Best 1 year old bull, M. H. Cochrane, Compton, "Baron Booth Lancaster,"	16
2nd do J. Nimmo, Camden East, "Grand Duke"	12
3rd do John Miller, Brougham, "Orchard Maverks"	8
Best bull calf under one year, J. Little, Waterdown, "General Napier,"	16
2nd do J. Snell, Edmonton, "Diamond Duke,"	12
3rd do John Bellwood, Clarke, "Romeo,"	8
Best bull of any age, F. W. Stone, Guelph	Diploma
Best Cow, M. H. Cochrane, Compton, "Rosedale"	24
2nd do F. W. Stone, Guelph, "Maid of Guelph,"	16
3rd do John Miller, Brougham, "Lorena,"	12
Best 3 years old cow, John Miller, Brougham, "Cora," imported from England	40
2nd do M. H. Cochrane, Compton, "Mal of Atha,"	24
3rd do F. W. Stone, Guelph, "Isabella 12th,"	10
Best 2 years old heifer, J. Miller, Brougham, "Nellie Bly," imported from United States	24
2nd do M. H. Cochrane, Compton, "Miss Margaret"	12
3rd do F. W. Stone, Guelph, "Cambridge 6th,"	8
Best 1 year old heifer, John Snell, Edmonton, "Clara Barton,"	12
2nd do George Robson, London, "Fashion 14th"	8
3rd do F. W. Stone, Guelph, "Banspareil,"	6
Best heifer calf under one year, M. H. Cochrane, Compton, "Wharfdale Rose,"	10
2nd do F. W. Stone, Guelph, "Duchess of York 6th"	6
3rd do John Snell, Edmonton, "Rosamond,"	4

CLASS VII.—DEVONS.—(73 ENTRIES.)

JUDGES:—John King, St. Thomas; J. P. Wheeler, Scarboro; H. J. Brown, Niagara.

Best bull, 4 years old and upwards, R. Spooner, Kingston, "Governor"	$36
2nd do do do "Monarch"	24
Best 3 years old bull, R. C. McCallum, Campbell's Cross, Peel, "Elgin"	32
2nd do George Mann, Bowmanville, "Prince of Wales"	20
Best 2 years old bull, Geo. Rudd, Guelph, "Wilmot"	24
2nd do W. & L. Courtice, Darlington, "Garibaldi"	16
3rd do Thos. Allin, Whitby, "Duke of Wellington"	8
Best 1 year old bull, H. H. Spencer, Brooklin, "Prince of Wales"	20
2nd do R. Foley, Darlington, "Hartland"	12
3rd do J. Pincombe, London, "Prince"	8
Best bull calf, under 1 year, J. Pincombe, London, "Curly Tye"	16
2nd do W. & J. Peters, London, "Lord Leicester"	10
3rd do do do "Monarch"	6
Best bull, of any age, Geo. Rudd, Guelph, "Wilmot, Duplome.	
Best cow, W. & J. Peters, London, "Trucfit 2nd"	24
2nd do J Pincombe, London, "Pretty Maid"	16
3rd do Geo. Mann, Bowmanville, "Gay Lass"	12
Best 3 years old cow, W. & J. Peters, London, "Transit"	20
2nd do Geo. Mann, Bowmanville, "Lady Bird"	14
3rd do Geo. Rudd, Guelph, "Lady Ann"	10
Best 2 years old heifer, H. H. Spencer, Brooklin, "Stately"	16
2nd do W. & J. Peters, London, "Curly"	12
3rd do R. Foley, Darlington, "Lady Grace"	8
Best 1 year old heifer, H. H. Spencer, Brooklin, "Fancy,"	12
2nd do J. Pincombe, London. "Quartly Fortman Picture"	

3rd do W. & J. Peters, London, "Tallp"..... $6
Best heifer calf, under one year, J. Pincombe, London, "Harvest Picture"..... 10
2nd do Geo. Mann, Bowmanville..... 6
3rd do Geo. Rudd, Guelph, "Florence"..... 4

REMARKS BY JUDGES:—Your judges in this class, found it very difficult to decide, as the quality of the animals were so very nearly alike, and all of very superior quality.

CLASS VIII.—HEREFORDS.—(33 ENTRIES.)

JUDGES.—Edward Jones, Stamford; John Wilmot, Kingston; James Bussell, Horaby.

Best bull, 4 years old and upwards, F. W. Stone, Guelph, "Guelph."..... $36
Best 3 year old bull, Wm. Perdue, Kilmanagh, Peel, "Sir Benjamin."..... 32
2nd do R. L. Denison, Toronto, "Victor."..... 20
Best 2 years old bull, M. H. Cochrane, Compton..... 24
2nd do F. W. Stone, Guelph..... 16
Best 1 year old bull, F. W. Stone, Guelph, "Confederation" 20
2nd do do do "Sir Charles"... 12
Best bull calf, under one year, F. W. Stone, Guelph, "Prince Alfred."..... 16
2nd do do do "The Premier"... 10
Best bull, of any age, Wm. Perdue, Kilmanagh, Peel, "Sir Benjamin."..... diploma
Best cow, F. W. Stone, Guelph, "Bonny Lass"..... 24
2nd do M. H. Cochrane, Compton, "Necklace"..... 16
3rd do F. W. Stone, Guelph, "Graceful 2nd,"..... 12
Best 3 years old cow, F. W. Stone, Guelph, "Princess 2nd," 20
2nd do do "Sweetheart,".. 14
Best 2 years old heifer, M. H. Cochrane, Compton..... 16
2nd do do do 12
Best 1 year old heifer, M. H. Cochrane, Compton 13
2nd do F. W. Stone, Guelph..... 8
3rd do do do 6
Best heifer calf, under 1 year, F. W. Stone, Guelph..... 10
2nd do do do 6
3rd do do do 4

REMARKS BY JUDGES:—In this class the judges remarked that they were pleased to find more competition than heretofore, and also that the animals shown in this class were splendid specimens of this excellent breed of cattle.

CLASS IX.—AYRSHIRES.—(31 ENTRIES.)

JUDGES.—William Beatty, Lansdown; John Weir, jr., West Flamboro'; John Crawford, Malvern.

Best bull, 4 years old and upwards, W. Wheeler, Woburn.. $36
2nd do J.S. Marsellis, N'th Williamsburg, "Hughie," 24
3rd do George Morton, South Crosby, "Abe Lincoln."..... 16
Best 3 years old bull, J. Boyle, West Flamboro'..... 32
Best 2 years old bull, J. Lawrie, Scarboro', "Duncan,".. 24
2nd do George Purvis, Portage du Fort, "Tam O'Shanter,"..... 16
3rd do J. Carrie, Dereham, "Punch,"..... 8
Best 1 year old bull, W. Wheeler, Woburn, "Carrick Farmer,"..... 29
2nd do Thos. Thompson, Williamsburg..... 12
3rd do John Pratt, Cobourg..... 7
Best bull calf under one year, Geo. Morton, South Crosby, "Ino Sanfield,"..... 10
2nd do W. Wheeler, Woburn, "Captain,"..... 10
3rd do George Morton, South Crosby, "Elgin,"..... 5
Best bull of any age, W. Wheeler, Woburn ..... Diploma
Best cow, W. Wheeler, Woburn 24
2nd da do do 16
3rd do do do 12
Best 3 years old cow, W. Gibson, Williamsburg..... 20
2nd do W. Wheeler, Woburn..... 14
3rd do George Morton, South Crosby..... 10
Best 2 years old heifer, W. Wheeler, Woburn, "Beauty," 16
2nd do do do "Queen," 12
3rd do do do "Lilley," 8
Best 1 year old heifer, Thos. Thompson, Williamsburg.... 12
2nd do W. Wheeler, Woburn, "Blossom,"..... 8
3rd do do do "Cherry,"..... 6
Best heifer calf under one year, George Morton, South Crosby, "Charlotte 9th,"..... 10
2nd do do do "Lawrie,"..... 6
3rd do de do "Lady Monk,"..... 4

CLASS X.—GALLOWAYS—(39 ENTRIES.)

JUDGES.—John B. Ashworth, Ottawa; Jas. Carruthers, Grafton; Jacob Young, York, G. R.

Best bull, 4 years and upwards, Arthur McNeil, Vaughan. $36
2nd do Joseph Youll, Carlton Place, Lanark..... 24
3rd do Thomas McCrae, Guelph..... 16
Best 3 year old bull, Wm. Hood, Guelph, "Our John,".. 32
Best 2 year old bull, Wm. Hood, Guelph, "Selkirk,"..... 24
2nd do John Vassil, Dundas, "Lord Napier,"..... 16
Best 1 year old bull, A. McNeil, Vaughan, "Chub,"..... 20
2nd do Wm. Hood, Guelph, "Uncle Tom."..... 12
3rd do Thos. McCrae, Guelph, "Bonnie Dundee," 7
Best bull calf under one year, A. McNeil, Vaughan, "Prince,"..... 16
2nd do W. Hood, Guelph, "Geordie,"..... 10
3rd do A. McNeil, Vaughan, "Robin Hood,"..... 6
Best bull any age, A. McNeil, Vaughan, "Hardfortune," Diploma
Best cow, James Graham, Vaughan 24
2nd do A. McNeil, Vaughan 16
3rd do Wm. Hood, Guelph 12
Best 3 years old cow, Wm. Hood, Guelph 20
2nd do John Borer, West Flamboro', "Betty,"..... 14
3rd do Thomas McCrae, Guelph, "Lady Kenmure" 10
Best 2 years old heifer, William Hood, Guelph, "Lady Isabella,"..... 16
2nd do A. McNeil, Vaughan, "Lizzie,"..... 12
3rd do Thomas McCrae, Guelph, "Flora,"..... 9
Best 1 year old heifer, Wm. Hood, Guelph, "Maggie Lauder,"..... 12
2nd do A. McNeil, Vaughan, "Susan,"..... 8
3rd do Thomas McCrae, Guelph, "Grace Darling," 6
Best heifer calf under one year, Thomas McCrae, Guelph, "Mary Hay,"..... 10
2nd do do do "Bessie Bell," 6
3rd do J. Coleman, Strabane, "Bagma,"..... 4

CLASS XI.—ANGUS CATTLE—(3 ENTRIES.)

JUDGES.—John B. Ashworth, Ottawa; Jas. Carruthers, Grafton; Jacob Young, York, G. R.

Best bull, 1 year or over, and under 3 years old, Jas. Nimmo, Camden East, "Black Prince,"..... $24
Best cow, 3 years old and over, James Nimmo, Camden East, "Heather Bell,"..... 20

CLASS XII.—GRADE CATTLE.—(46 ENTRIES.)

JUDGES.—G. J. Morgan, Osnabruck Centre; J. H. Newlove, Mackville; Thos. McCrae, Guelph; Wm. Lang, St. Mary's; and Wm. Hill, Belmont.

Best grade cow, John Miller, Brougham..... $24
2nd do G. S. Allen, Nelson..... 16
3rd do H. Young, Guelph..... 12
Best 3 years old cow, J. Miller, Brougham..... 20
2nd do Thos. Stock, Waterdown..... 14
3rd do H. Young, Guelph..... 10
Best 2 years old heifer, H. Young, Guelph..... 16
2nd do John Miller Brougham..... 12
3rd do John Stock, East Flamboro'..... 8
Best 1 year old heifer, John Miller, Brougham..... 12
2nd do Thomas Stock, Waterdown..... 8
3rd do Robert Tuck, Waterdown..... 6
Best heifer calf, under 1 year, John Miller Brougham..... 10
2nd do Thomas Stock, Waterdown..... 6
3rd do H. Young, Guelph..... 4

REMARKS BY JUDGES:—The judges state that the young cattle brought before them were very superior, especially when the season is taken into account.

CLASS XIII.—FAT AND WORKING CATTLE, ANY BREED.—33 ENTRIES.

JUDGES.—William Broden, Kingston; Richard Tooley, Gladston; Philip Armstrong, Yorkville; and John Flanagan, Kingston.

Best fat ox or steer, Jas. Vine, St. Catharines..... $30
2nd do Wm. Elliott, Kingston..... 20
3rd do do do 13
Best fat cow or heifer, H. Young, Guelph..... 30
2nd do John Lindsay, Woodstock..... 20
3rd do Richard Frain, Ravenswood..... 12
Best yoke of working oxen, Geo. Robson, London Township..... 20
2nd do Jacob Terryburry, Glanford..... 12
3rd do W. & J. Peters, London, Strabane..... 8
Best yoke 3 years old steers, John K. Crawford, Thorold.. 16
2nd do John R. Martin, Cayuga..... 10
3rd do R. Spooner, Kingston Township..... 6
Best team of oxen, not less than ten yoke from one township, the property of any number of persons, N. H. Wickett, Seneca.. 40

SHEEP, LONG WOOLLED.

CLASS XIV.—COTSWOLDS.—(135 ENTRIES.)

JUDGES.—James Cowan, Galt; Arthur Tew, Washington; James Arkell, Arkell P. O.

Best ram, 2 shears and over, F. W. Stone, Guelph..... $16
2nd do M. H. Cochrane, Compton..... 10
3rd do F. W. Stone, Guelph..... 6
Best shearling ram, John Miller, Pickering..... 16
2nd do do do 10
3rd do F. W. Stone, Guelph..... 5
Best ram lamb, Geo. Weldrick, Vaughan..... 8
2nd do John Snell, Edmonton..... 5
3rd do F. W. Stone, Guelph..... 3
Best two ewes, 2 shears and over, F. W. Stone, Guelph... 16
2nd do M. H. Cochrane, Compton..... 11
3rd do James Russell, Richmond Hill..... 8
Best two shearling ewes, M. H. Cochrane, Compton..... 14
2nd do do do 10
3rd do F. W. Stone, Guelph..... 6
Best two ewe lambs, F. W. Stone, Guelph..... 8
2nd do John Snell, Edmonton..... 5
3rd do M. H. Cochrane, Compton..... 3

CLASS XV.—(336 ENTRIES.)

JUDGES.—J. W. Bowes, Boyne; John Marshall, Doon; and Jas. Vine, St. Catharines.

Best ram, two shears and over, John Snell, Edmonton.... $16
2nd do Robert White, London Township..... 10
3rd do George Robson, London..... 5
Best shearling ram, John Snell, Edmonton..... 16
2nd do do do 10
3rd do George Robson..... 5
Best ram lamb, Christopher Walker, Ilderton..... 6
2nd do James Russell, Richmond Hill..... 5
3rd do John Snell, Edmonton..... 3
Best 2 ewes, two shears and over, M. H. Cochrane, Compton..... 16
2nd do Robert White, London..... 12
3rd do James Russell, Richmond Hill..... 6
Best 2 shearling ewes, Christopher Walker, Ilderton..... 14
2nd do B. Charlton, London..... 10
3rd do John Snell, Edmonton..... 5
Best 2 ewe lambs, Christopher Walker, Ilderton..... 6
2nd do Joseph Kirby, Milton..... 5
3rd do John Scott, Coldstream..... 3

EXTRA PRIZES.

Robert Callacutt, Tyrone, 2 Lincoln rams..... $8
Joseph Kirby, Milton, Lincoln aged ram, imported..... 10
Do Lincoln shearling ram..... 10
Do Lincoln ram lamb..... 5
Do 2 Lincoln two shear ewes..... 6
Do do do 3
2 Lincoln ewe lambs..... 6
William Hendrie, Hamilton, Lincoln shearling ram, imported..... 8
Do. ram lamb..... 5
Thomas Smith, Britannia, aged Lincoln ram..... 8
2 Improved Leicester shearling rams, commended.
2 Improved Leicester ram lambs, commended.

SHEEP, MEDIUM-WOOLLED.

CLASS XVI.—SOUTHDOWNS.—(96 ENTRIES.

JUDGES.—John Mitchell, Stamford; Nathan Choate, Port Hope; James Maxwell, Paris; J. B. Carpenter, Simcoe.

Best ram two shears and over, F. W. Stone, Guelph..... $16
2nd do do do do 10
3rd do John Snell, Edmonton..... 5
Best shearling ram, F. W. Stone, Guelph..... 16
2nd do do do 10
3rd do H. E. Irving, Hamilton..... 5
Best ram lamb, F. W. Stone, Guelph..... 8
2nd do do do 5
3rd do James Anderson, Puslinch..... 3
Best 3 ewes two shears and over, F. W. Stone, Guelph.... 16
2nd do do do 11
3rd do do do 6
Best 2 shearling ewes, F. W. stone, Guelph..... 14
2nd do do do 10
3rd do do do 6
Best 2 ewe lambs, F. W. Stone, Guelph..... 6
2nd do do do 4
3rd do J. Snell, Edmonton..... 3

CLASS XVII.—SHROPSHIRE AND HAMPSHIRE DOWNS.—(23 ENTRIES.)

JUDGES.—Same as Class 16.

Best ram two shears and over, M. H. Cochrane, Compton. $10
2nd do H. H. Spencer, Brooklin..... 10
Best shearling ram, H. H. Spencer, Brooklin..... 10
2nd do George Miller, Markham..... 5
Best ram lamb, M. H. Cochrane, Compton..... 8
2nd do H. H. Spencer, Brooklin..... 5
3rd do do do 3
Best 2 ewes two shears and over, M. H. Cochrane, Compton..... 16
2nd do H. H. Spencer, Brooklin..... 11
3rd do George Miller, Markham..... 6
Best 2 shearling ewes, H. H. Spencer, Brooklin..... 14
2nd do George Miller, Markham..... 10
3rd do H. H. Spencer, Brooklin..... 6
Best 2 ewe lambs, M. H. Cochrane, Compton..... 8
2nd do H. H. Spencer, Brooklin..... 5
3rd do George Miller, Markham..... 3

SHEEP, FINE-WOOLLED.

CLASS XVIII.—SPANISH, FRENCH, AND SAXON MERINOS—(98 ENTRIES.)

JUDGES.—C. B. Jennings, Niagara; George W. Miller, Yeddo, N. Y.; J. K. Crawford, Stamford.

Best ram two shears and over, John Smith, Burford..... $16
2nd do A. Jamison, Vaughan..... 10
3rd do H. H. Hurd, Hamilton..... 5
Best shearling ram, John Smith, Burford..... 16
2nd do A. Jamison, Vaughan..... 10
3rd do James H. Bessey, Cranham..... 5
Best ram lamb, Alex. Young, Barton..... 8
2nd do John Smith, Burford..... 5
3rd do do do 3
Best 2 ewes two shears and over, G. E. Foster, Whitby .. 16
2nd do John Smith, Burford..... 11
3rd do A. Jamison, Vaughan..... 8
Best 2 shearling ewes, A. Jamison, Vaughan 14
2nd do Allen Smith, Ancaster..... 10
3rd do F. Van de Bogart, Richmond Hill..... 6
Best 2 ewe lambs, Alex. Young, Barton..... 8
2nd Thomas Shaw, Glanford 5
3rd do John Smith, Burford..... 3

EXTRA ENTRIES.

F. Van de Bogart, Richmond Hill, negretti merino two ram, shears, commended.
Do. negretti merino ram lamb, commended.
John Smith, Burford, Silesian ram, commended.

CLASS XIX.—FAT SHEEP—(22 ENTRIES.)

JUDGES.—William Breden, Kingston; Richard Tooley, Gladston; Philip Armstrong, Yorkville; and John Flanagan, Kingston.

Best 2 fat wethers, Thos. McCrae, Guelph $12
2nd do William Donaldson, Woodstock..... 8
3rd do F. W. Stone, Guelph..... 4
Best 2 fat ewes, F. W. Stone, Guelph..... 12
2nd do do do 8
3rd do, C. Walker, Ilderton..... 4

PIGS—LARGE BREEDS.

CLASS XX.—YORKSHIRES—(37 ENTRIES.)

JUDGES—John Rogers, Newmarket; R. Best, Niagara; and Geo. Silcox, W. Elgin.

Best boar one year and over, James Brodie & Son, Thurlow..... $15
2nd do James Brodie, & Son, Thurlow 10
3rd do Jos. Featherstone, Toronto township 6
Best boar under one year, Jas. G. Bigger, Trafalgar 10
2nd do N. Bethell, Thorold 6
2nd do James Brodie & Son, Thurlow..... 4
Best breeding sow one year and over, Jos. Featherstone, Toronto township..... 10
2nd do James Main, Trafalgar..... 4
Best sow under one year old, Jas. Brodie & Son, Thurlow, 5
2nd do do do 4
3rd do James Ford, Trafalgar 3

CLASS XXI.—LARGE BERKSHIRES—(17 ENTRIES.)

JUDGES.—Same as Class 20.

Best boar one year and over, H. J. Lawry, Barton $15
2nd do R. Spooner, Kingston township 10
3rd do Joseph Featherstone, Toronto township..... 6
Best boar under one year, H. J. Lawry, Barton..... 10
2nd do Hugh Dempsey, Downie..... 6
3rd do John Corrie, Dereham 4
Best breeding sow one year and over, H. J. Lawry, Barton, 10
Best sow under one year old, John Corrie, Dereham..... 6
2nd do H. J. Lawry, Barton..... 4

CLASS XXII.—ALL OTHER LARGE BREEDS.—(30 ENTRIES.)

JUDGES.—Same as in Class 20.

Best boar one year and over, James Main, Trafalgar..... $15
2nd do Samuel Marshall, Hamilton 10
3rd do F. Grant, Hamilton 6
Best boar under one year, James Main, Trafalgar 10
2nd do D. Featherstone, Trafalgar 6
3rd do Wm. Thompson, St. Catharines 4
Best breeding sow one year and over, Geo. Roach, Hamilton 10
2nd do William Thompson, St. Catharines 7
Best sow under one year old, Jas. G. Bigger, Trafalgar... 5
2nd do D. Featherstone, Trafalgar 4
3rd do James Ford, Trafalgar 3

PIGS—SMALL BREEDS.

CLASS XXIII.—SUFFOLKS—(22 ENTRIES.)

JUDGES.—Daniel Vandewater, Belleville; John Kerr, Drummondville; and Robert Currie, Niagara.

Best boar one year and over, James Main, Trafalgar..... $15
2nd do Joseph Featherstone, Toronto township..... 10
3rd do Hugh Husband, Nelson 6
Best boar under one year, George Rosch, Hamilton, imported from England 20
2nd do James Main, Trafalgar 7
3rd do Geo. Roach, Hamilton..... 4
Best breeding sow one year and over, George Roach, Hamilton, imported from England 20
2nd do James Main, Trafalgar 7
3rd do Jos. Featherstone, Toronto township 4
Best sow under one year old, James Main, Trafalgar 5
2nd do Hugh Husband, Nelson 4
3rd do James Main, Trafalgar 3

CLASS XXIV.—IMPROVED BERKSHIRES—(43 ENTRIES.)

JUDGES.—Same as in Class 23.

Best boar one year and over, John Crumb, Darlington.... $15
2nd do Jos. Featherstone, Toronto township 10
3rd do John Corrie, Dereham 6
Best boar under one year, Geo. Roach, Hamilton, imported from England 20
2nd do James Main, Trafalgar 6
3rd do James Johnson, Grantham 4
Best breeding sow one year and over, Wm. Edmondson, Brantford..... 10
2nd do James Main, Trafalgar 7
3rd do Jos. Featherstone, Toronto township 4
Best sow under one year old, Geo. Roach, Hamilton, imported from England 10
2nd do. James W. Johnson, Grantham 6
3rd do James Ford, Trafalgar 3

CLASS XXV.—POULTRY, &c.—(342 ENTRIES.)

JUDGES.—A. McL. Howard, Toronto; Lieut.-Col. Hassard, Toronto; F. Finch, Toronto; W. H. Van Ingen, Woodstock; and G. J. Miller, Niagara.

Best pair white dorkings, John Bogue, London..... $ 4
Best pair of colored dorkings, John Bogue, London..... 4
2nd do Geo. Rykert, St. Catharines..... 2
Jno. Bogue, London ..... Highly Commended
J. S. Barnes, St. Thomas ..... Commended
Best pair of white crested black Polands..... 4
2nd do do do 2
Best pair of Golden Polands, W. & J. Peters, London.... 4
2nd do do do 2
Best pair of silver Polands, John Bogue, London..... 4
2nd do do do 2
Best pair of any other variety of Polands, Mark Hill, Hamilton 4
2nd do John Bogue, London..... 2
Best pair of game fowls (black breasted and other reds) W. & J. Peters, London..... 4
2nd do Thomas Harper, Hamilton 2
Mark Hill, Hamilton ..... Highly Commended
Best pair of game fowls, any other variety, Mark Hill, Hamilton 4
2nd do Mark Hill, Hamilton..... 2
John Plummer, London ..... Highly Commended
Best pair of buff Cochin Chinas, George Rykert, St. Catharines..... 4
2nd do W. & J. Peters, London 2
Wm. J. Bailey, London ..... Commended
Best pair of Brahma Pootras (light), Geo. Rykert, St. Catharines..... 4
2nd do Geo. Rykert, St. Catharines..... Trans.
Wm. J. Bailey, London ..... Highly Commended
Best pair of Spanish fowls, M. B. Hicks, Toronto..... 4
2nd do Geo. Rykert, St. Catharines..... 3
3rd do Jonas S. Barnes, St. Thomas..... 2
Geo. Z. Rykert, St. Catharines ..... Highly Commended
W. & J. Peters, London..... do
M. B. Hicks, Toronto..... do
Best pair of golden or silver pencilled Hamburgs, W. & J. Peters, London..... 4
Best pair of golden or silver spangled Hamburgs, W. & J. Peters, London..... 4
2nd do Alex. Butterford, Hamilton..... 2
Mark Hill, Hamilton ..... Highly Commended
Best pair of any other variety of Hamburgs, W. & J. Peters, London..... 4
2nd do do do 2
Best pair of Sebright bantams, W. & J. Peters, London.. 4
2nd do do do 1
Best pair of any other variety of bantams, Geo. Rykert, St. Catharines..... 4
Best pair of turkeys (any color) W. & J. Peters, London, 5
2nd do John Bogue, London..... 3
3rd do do 2
Best pair of wild turkeys, 2nd do, W. & J. Peters, London 4
Best pair of geese (white), John Cullis, Hamilton Tp..... 4
2nd do do do 2
Best pair of geese (colored) R. Cullis, Hamilton Tp..... 4
2nd do Jonas S. Barnes, St. Thomas..... 2
Best pair of Aylesbury ducks, 2nd do, Geo. Barnes, Barton 2
Best pair of Rouen ducks, W. & J. Peters, London..... 4
2nd do James W. Johnson, Granthem..... 2
Best pair of any other kind of ducks, W. & J. Peters, London..... 4
2nd do James W. Johnson, Granthem..... 2
Best pair of Guinea fowls, John Smith, Burford..... 4
2nd do W. & J. Peters, London..... 2
Best pair of pea fowls, Egerton Shaver, Ancaster..... 4
2nd do James L. Squier, Hamilton..... 2
Best carrier, pouter and tumbler pigeons, 2nd do, Wm. J. Bailey, London 4
Best Jacobins, fantails, barbs and trumpeters, Wm. J. Bailey, London..... 4
Best collection pigeons, any other varieties, Wm. J. Bailey, London..... 4
2nd do F. E. Manning, Hamilton..... 2

CHICKENS AND DUCKS OF 1868.

Best pair of dorkings of either variety, W. & J. Peters, London..... $4
2nd do do do 2
Best pair of game fowl of any variety, Mark Hill, Hamilton..... 4
2nd do Edward Law, Kingston..... 2
Best Spanish fowl, W. & J. Peters, London..... 4
2nd do J. S. Barnes, St. Thomas..... 2
Best pair of Cochin China, of any variety, Geo. Rykert, St. Catharines..... 4
2nd do Geo. Roach, Hamilton..... 2
W. J. Bailey, London..... Commended
Best pair of Brahma Pootras, Geo. Rykert, St. Catharines, $4
2nd do do do 2
Best pair of Hamburgs, any variety, W. & J. Peters, London..... 4
2nd do Mark Hill, Hamilton..... 2
Best pair of Polands, any variety, John Bogue, London.. 4
2nd do do do .. 2
Best pair of Aylesbury Ducklings, W. & J. Peters, London, 4
Best pair of Rouen ducklings, W. & J. Peters, London.. 4
Best pair of ducklings, any other kind, W. & J. Peters, London..... 4
2nd do J. G. Freeman, Hamilton..... 2
Best pair of fowls of 1868 of any other kind, Geo. Rykert, St. Catharines..... 4
2nd do W. & J. Peters, London..... 2

EXTRA PRIZE.

W. Horning, East Flamboro', for pair of Dominique fowls, 2

AGRICULTURAL PRODUCTIONS.

CLASS XXVII.—GRAINS, SMALL FIELD SEEDS, HOPS, &c.—(462 ENTRIES.)

JUDGES.—John Laurie, Fort Dalhousie; P. R. Palmer, Thurlow; A. Cooke,——; John McKay, Toronto; P. M. Shannon, Rimalyon; S. J. Pearson, Meadowvale.

'The Canada Company's prize for the best 25 bushels of Fall Wheat, the produce of the Province of Ontario, being the growth of the year 1868. Each sample must be of one distinct variety, pure and unmixed, of the best quality for seed, and not to be tested merely by weight. The prize to be awarded to the actual grower only of the Wheat, which is to be given up to and become the property of the Association, for distribution to the County Societies for seed—John Hamilton, Strabane $100
2nd do by the Association, Thomas T. Turnbull, South Dumfries..... 40
3rd do by the Association, T. McEvers, Hamilton township 20
Best 2 bushels of white winter wheat, John Hamilton, Strabane 10
2nd do Joseph Rymal, Barton..... 6
3rd do E. Blagden, East Flamboro'..... 4
4th do P. Bartholomew, Markham 2
Best 2 bushels of red winter wheat, John Hamilton, Strabane 10
2nd do Samuel Smith, North Glanford 6
3rd do J. C. Swackhamer, Grimsby..... 4
4th do A. C. Smith, South Dumfries 2
Best 2 bushels of Fife spring wheat, S. Phipps, Pickering, 6
2nd do Wm. Thompson, Whitby 4
3rd do T. McEvers, Hamilton township 2
4th do J. H. Rymal, West Flamboro'..... 1
Best 2 bushels Club spring wheat, John Cullis, Hamilton township 8
2nd do do T. McEvers, Hamilton township..... 6
3rd do R. Cullis, Hamilton township..... 4
4th do J. C. Swackhamer, Grimsby..... 2
Best 2 bushels spring wheat of any other variety, James Tennant, Brantford 8
2nd do J. C. Swackhamer, Grimsby 6
3rd do Jos. Grant, Puslinch..... 4
4th do J. D. Lafferty, Hamilton 2
Best 2 bushels barley (two-rowed) Allan Bond, Storrington 6
2nd do William Thompson, Whitby 4
3rd do John Pratt, Cobourg..... 2
Best 2 bushels of barley (six-rowed) Robt. Tuck, Waterdown 6
2nd do Charles Tuck, Waterdown 4
3rd do James Freeman, West Flamboro' 2
4th do William Thompson, Whitby..... Trans.
Best 2 bushels of winter rye, J. D. Lafferty, Hamilton.... 6
2nd do A. Shaw, Toronto 4
3rd do James Smith, East Flamboro' 2
4th do Thomas Easterbrook, East Flamboro'..... Trans.
Best 2 bushels of oats (white) James Main, Trafalgar..... 6
2nd do James Gibson, Ancaster 4
3rd do William Hendrie, Hamilton 2
4th do John Shaw, East Nissouri ..... Trans.
Best 2 bushels of oats (black) James Carey, West Flamboro'..... 6
2nd do Richard Carey, East Flamboro'..... 4
3rd do William Carey, West Flamboro'..... 2
4th do James Rowatt, North Dorchester..... Trans.
Best 2 bushels of small field peas, Jas. Carey, West Flamboro' 6
2nd do John Harker, Kingston township..... 4
3rd do John Shaw, East Nissouri 2
4th do W. H. Brooking, Ancaster ..... Trans.
Best 2 bushels of white marrowfat peas, A. Shaw, Toronto 4
2nd do James Main, Trafalgar 3
3rd do John Cullis, Hamilton township 2
4th do R. Cullis, do ..... Trans.
Best 2 bushels black-eyed marrowfat peas, Wm. Lottridge, Barton 6
Best 2 bushels of any other kind of field peas, James R. Foster, East Flamboro' 6
2nd do E. Blagden, do 4
3rd do Charles Foster, do 2
4th do James Smith, Ancaster..... Trans.
Best bushel of small white field beans, G. Bennett, Cobourg..... 6
2nd do C. Lewis, Dereham 4
3rd do James Moore, Etobicoke 2
4th do John Richardson, Pelham ..... Trans.
Best bushel of large white field beans, J. Richardson, Pelham 6
2nd do E. Blagden, East Flamboro' 4
3rd do C. Lewis, Dereham..... 2
4th do James Moore, Etobicoke ..... Trans.
Best 2 bushels Indian corn in the ear (white), J. R. Pettit, Grimsby 6
2nd do G. M. Howell, Ancaster 4
3rd do H. J. Brown, Niagara 2
4th do Henry Lutz, Saltfleet ..... Trans.
Best 2 bushels Indian corn in the ear (yellow), Thomas Easterbrooke, East Flamboro'..... 6
2nd do F. Morrison, Hamilton 4
3rd do H. J. Brown, Niagara 2
4th do D. McDougall, East Flamboro'..... Trans.
Extra, A. Shaw, Toronto..... 4
Best bushel Timothy seed, A. Thompson, East Flamboro' 6
2nd do J. G. Vaneyck, Grimsby 4
3rd do John Richardson, Pelham 2
4th do James Carey, West Flamboro..... Trans.
Best Bushel clover seed, John Smith, Burford 6
2nd do J. Gardner, Pelham 4
3rd do O. F. Mabee, Middleton 2
4th do J. H. Davis, Barton ..... Trans.
Best half bushel Alsike clover seed, H. M. Thomas, Brooklin..... $6
2nd do Thomas Stock, Waterdown..... 4
Best bushel flax seed, J. Hamilton, Strabane..... 6
2nd do O. F. Mabee, Middleton 4
3rd do E. Blagden, East Flamboro' 2
Best Swedish turnip seed, from transplanted bulbs, not less than 20 lbs., Charles Holt, Whitby..... 6
Best 14 lbs. white Belgium field carrot seed, Robert Beith, Bowmanville 6
2nd do Charles Holt, Whitby 4
3rd do Samuel Sinfield, Barton 2
Best 12 lbs. long red mangel wurzel seed, Allan Bond, Storrington 6
2nd do S. Sinfield, Barton 4
3rd do Chas. Holt, Whitby 2
Best 12 lbs. yellow globe mangel wurzel seed, John Pratt, Cobourg 6
Best bale hops, not less than 112 lbs, W. J. Bailey, London 20
2nd do Geo. Jardine, Saltfleet 12
3rd do J. F. Calder, Grimsby 8
Best bushel tares, P. Bartholomew, Markham, ... 6
2nd do W. Riddell, Hamilton 3
2nd do Joseph Rymal, Barton ..... Trans.
Best bushel buckwheat, A. Thompson, East Flamboro'.. 4
2nd do R. Carey, East Flamboro' 2
3rd do do Moore, Etobicoke ..... Trans.
Best bushel millet, J. Smith, Burford 4
Best bushel Hungarian grass seed, J. Hamilton, Strabane 4

EXTRA ENTRIES.

Collection of garden and horticultural fruits, T. J. Dixon, Hamilton ..... Highly commended.
Collection of seeds, Wm. Weld, London ..... do do
King Phillip corn, Joseph Gardner, Pelham 2
5 lbs. yellow onion seed, S. Sinfield, Barton, Highly commended.

CLASS XXVIII.—ROOTS, OTHER HOED FIELD CROPS, FLAX, ETC.—(440 ENTRIES.)

JUDGES.—Wm. White, Arthur; Geo. Murton, Guelph; Captain Shaw, Toronto; R. J. Dunlop, Kingston.

Best bushel pink-eyed potatoes, D. McDougall, Wentworth $3
2nd do E. Blagden, East Flamboro' 2
3rd do E. Shaver, Ancaster 1
Best bushel cup potatoes, R. Guthrie, Toronto 3
Best bushel garnet chilis, Richard Carey, East Flamboro' 3
3rd do D. McDougall, East Flamboro'..... 2
Best bushel Early Rose potatoes, D. McDougall, East Flamboro'..... 3
2nd do Wm. Burgess, Etobicoke 2
Best bushel peachblows, Richard Carey, East Flamboro' 3
2nd do Geo. Barnes, Barton 2
Best bushel buckeye or carters, James Moore, Etobicoke 3
2nd do R. Guthrie, Toronto 2
Best bushel of any other sort potatoes, W. Hendrie, Hamilton 3
2nd do Jas. Anderson, Puslinch 2
3rd do James Harvey, Barton..... Trans.
Best collection of field potatoes, a peck of each sort—named, R. Guthrie, Toronto 4
2nd do E. Shaver, Ancaster 3
3rd do J. H. Rymal, West Flamboro' 2
Best 8 roots purple-top Swede turnips, D. McDougall, East Flamboro' 3
2nd do E. Blagden, East Flamboro' 2
3rd do D. McDougall, Clarville 1
Best 8 roots green top Swede turnips, Jas. Liddle, Ancaster 3
2nd do Ford & Hay, Waterdown..... 2
3rd do Geo. Murray, Westminster 1
Best 8 roots Skirvings Swede turnips, S. Wood, Etobicoke 3
2nd do H. J. Brown, Niagara 2
3rd do Thos. Stock, Waterdown 1
Best 8 roots white globe turnips, W. Riddell, Hamilton Tp 3
2nd do Wm. Calvert, Ops 2
3rd do E. Blagden, East Flamboro' ..... Trans.
Best 8 Aberdeen yellow turnips, Saul Wood, Etobicoke.. 3
2nd do Kenneth Mackenzie, Aberfoyle 2
Best 8 grey stone turnips, E. Blagden, East Flamboro'... 3
2nd do Wm. Hendrie, Hamilton 2
3rd do W. Riddell, Hamilton Tp 1
Best 12 roots red carrots, James Carey, West Flamboro'.. 3
2nd do James Harvey, Barton 2
3rd do Wm. Benham, Guelph 1
Best 12 roots white or Belgian carrots, James Carey, West Flamboro' 3
2nd do Wm. Carey, West Flamboro' 2
3rd do Walter Burgess, Etobicoke..... 1
Best 8 roots mangel wurzel (long red), Wm. Burgess, Etobicoke 3
2nd do James Carey, West Flamboro' 2
3rd do Robert Simpson, Hamilton 1
Best 8 roots red globe mangel wurzel, Wm. Burgess, Etobicoke 3
2nd do Walter Burgess, Etobicoke..... 2
3rd do John Pratt, Cobourg ..... Trans
Best 8 roots yellow globe mangel wurzel, Wm. Burgess, Etobicoke 3
2nd do Walter Burgess, Etobicoke..... 2
3rd do John Pratt, Cobourg..... 1
Best 8 roots long yellow mangel wurzel, Wm. Burgess, Etobicoke 3
2nd do Walter Burgess, Etobicoke..... 2
3rd do John Pratt, Cobourg..... Trans.
Best 8 roots Rhol rabi, R. Guthrie, Toronto..... 3
2nd do A. W. Taylor, Barton 2
Best 6 roots white sugar beet, Wm. Burgess, Etobicoke .. 3
2nd do Jno. Pratt, Cobourg 2
3rd do James Carey, West Flamboro' 1
Best 12 roots parsnips, Wm. Burgess, Etobicoke 3
2nd do Walter Burgess, Etobicoke..... 2
3rd do David Ewing, Barton..... Trans.
Best 12 roots chicory, Chas. Holt, Whitby 3
2nd do Wm. Riddell, Hamilton 2
3rd do Geo. Fears, Toronto..... Trans.
Best 3 large squashes for cattle, Robert Simpson, Hamilton..... 6
2nd do John Pratt, Cobourg 3
3rd do Geo. H. Green, Nelson 1
Best 3 mammoth field pumpkins, James Moore, Etobicoke 3
Best 4 common yellow field pumpkins, Geo. H. Green, Nelson 3
2nd do J. H. Rymal, West Flamboro' 2
3rd do J. W. Vandusen, Grimsby ..... Trans.

Best broom corn brush, 23 lbs., Thomas Easterbrook, East Flamboro' ..... $ 3
2nd do D. McDougall, East Flamboro' 2
3rd do A. Easson, Hamilton ..... Trans.

THE CANADA COMPANY'S PRIZE FOR FLAX.

Best 112 lbs. of flax scutched, H. Willoughby, Otonabee.. $24
2nd do by the Association, H. Calcut, Monaghan.. 16

EXTRA ENTRIES.

E. C. Fearnside, Hamilton, 2 pots tobacco in bloom, commended.

HORTICULTURAL PRODUCTS.

CLASS XXIX.—FRUIT.—(550 ENTRIES.)

JUDGES.—D. W. Beadle, St. Catharines; Geo. Leslie, Toronto; R. Burnett, Hamilton; Wm. Halton, Hamilton; R. N. Ball, St. Catharines; Chas. Arnold, Paris.

Professional Nurserymen's List.—Competitors can receive only one premium in each section.

Best 30 varieties apples, correctly named, six of each, George Leslie, Toronto $8
Best twenty varieties do, correctly named, six of each, Wolverton & Smith, Grimsby 5
do do Geo. Leslie, Toronto 3
Best 6 varieties of fall table apples, named, 6 of each, George Leslie, Toronto 3
do do J. A. Bruce & Co., Hamilton 3
Best 6 varieties of fall cooking apples, named, 6 of each, Geo. Leslie, Toronto 3
Best 6 varieties winter table apples, named, 6 of each, George Leslie, Toronto 3
2nd do Wolverton & Smith, Grimsby 2
Best 6 varieties winter cooking apples, named, 6 of each, Wolverton & Smith, Grimsby 3
2nd do J. A. Bruce & Co., Hamilton 2
Best collection, not less than 15 varieties pears, correctly named, 3 of each, Geo. Leslie, Toronto 3
2nd do J. A. Bruce & Co., Hamilton 5
Best 6 varieties do, correctly named, 6 of each, George Leslie, Toronto 5
2nd do J. A. Bruce & Co., Hamilton 3
Best 6 varieties plums, correctly named, 6 of each, George Leslie, Toronto 3
Best 2 varieties of plums, correctly named, 6 of each, George Leslie, Toronto 3
Best collection of peaches, correctly named, not less than 6 varieties, Wolverton & Smith, Grimsby 5
Best 6 varieties of peaches, correctly named, 6 of each, Wolverton & Smith, Grimsby 3
Best collection of grapes, grown in open air, not more than 12 varieties, 2 bunches of each, named, D. W. Beadle, St. Catharines 5
2nd do W. H. Read, Grantham 3
Best 3 varieties of black grapes, grown in open air, 2 bunches of each, correctly named, D. W. Beadle, St. Catharines 3
W. H. Read, Grantham 2
Best 3 varieties of grapes, any other colour, grown in open air, two bunches each, correctly named, D. W. Beadle, St. Catharines 3
2nd do W. H. Reid, Grantham 2
Best collection of grapes, not more than 12 varieties, grown under glass, one bunch of each sort, correctly named, J. A. Bruce & Co., Hamilton 6
2nd do George Leslie, Toronto 4
Best 3 varieties black grapes grown under glass, J. A. Bruce & Co., Hamilton 3
2nd do George Leslie, Toronto 2
Best 3 varieties white grapes grown under glass, J. A. Bruce & Co., Hamilton 3
2nd do John Gray, York 2
Best 3 varieties grapes, any other colour, grown under glass, John Gray, York 3
Best and heaviest 1 bunch black Hamburg grapes, W. H. Reid, Grantham 3
2nd do J. A. Bruce & Co., Hamilton 2
Best and heaviest 1 bunch black grapes, any other kind, W. H. Reid, Grantham 3
2nd do J. A. Bruce & Co., Hamilton 2
Best and heaviest 1 bunch white grapes, John Gray, York, 3
2nd do J. A. Bruce & Co., Hamilton 2
Best display of fruit, the growth of exhibitor, distinct from other entries, three specimens of each sort, named, George Leslie, Toronto 9
2nd do J. A. Bruce & Co., Hamilton 6

General List.—Professional Nurserymen excluded.—Competitors can receive only one premium in each section.

Best 20 varieties of apples, correctly named, 3 of each, H. J. Brown, Niagara 6
2nd do G. J. Miller, Niagara 4
Best 10 varieties apples, correctly named, three of each, John Freed, Barton 4
2nd do Ralph Brecken, Nelson 3
3rd do James Healop, West Flamboro' 2
Best 4 varieties dessert apples, correctly named, six of each, Thomas Harper, Hamilton 3
2nd do Samuel Wood, Etobicoke 2
3rd do H. J. Brown, Niagara ..... Trans.
Best 4 varieties cooking do., correctly named, six of each, Thomas Harper, Hamilton 3
2nd do Samuel Wood, Etobicoke 2
3rd do Ralph Brecken, Nelson ..... Trans.
Best 12 apples, fall dessert apples, of one variety, correctly named, Philip Gage, Barton 3
2nd do S. Wood, Etobicoke 1 50
3rd do G. J. Miller, Niagara 1
Best 12 apples, fall cooking, of one variety, correctly named, H. J. Brown, Niagara 2
2nd do A. Morse, Galmsby 1 50
3rd do R. Carandoff, Montague 1
Best 12 apples, winter dessert, of one variety, correctly named, Thomas Harper, Hamilton 2
2nd do S. P. Sawyer, Hamilton 1 50
3rd do Philip Gage, Barton 1
Best 12 apples, winter cooking, of one variety, correctly named, Thomas Harper, Hamilton 2
2nd do F. Morrison, do 1 50
3rd do H. Smith, East Flamboro' 1
Best collection not more than 20 varieties pears, correctly named, three of each, Geo. Hykert, St. Catharines.... 6
2nd do G. J. Miller, Niagara 3
3rd do John Freed, Barton 2
Best 6 varieties pears, L. Springer, Barton 6
2nd do J. G. Peneyck, Grimsby 3
3rd do Robert Burnett, Hamilton 2
Best 3 do. correctly named, three of each, S. P. Sawyer, Hamilton ..... $ 3
2nd do R. Rowe, Hamilton 2
3rd do L. Springer, Barton 1
Best 6 fall pears of one variety, S. P. Sawyer, Hamilton, 3
2nd do do do 2
3rd do Mrs. D. B. Galbraith, Hamilton ..... Trans.
Best 6 winter pears, of one variety, John Freed, Barton.. 3
2nd do R. Warren, Niagara 2
3rd do R. Rowe, Hamilton 1
Best collection not less than 9 varieties plums, correctly named, 6 of each, George Elliott, Guelph 4
2nd do David Allan, Guelph 3
3rd do E. C. Fearnside, Hamilton 2
Best 12 dessert plums, one variety, correctly named, J. D. Humphreys, Toronto 2
2nd do J. C. Kilborne, Clinton 1 50
3rd do W. A. Smith, Brantford ..... Trans.
Best 12 cooking plums, one variety, correctly named, Geo. Brown, Hamilton 2
2nd do D. Allan, Guelph 1 50
3rd do A. W. Taylor, Barton 1
Best 6 varieties peaches, correctly named, 6 of each, H. J. Brown, Niagara 3
2nd do S. J. J. Brown, Niagara 2
3rd do R. Warren, Niagara 1
Best 8 peaches, white flesh, one variety, correctly named, H. J. Brown, Niagara 3
2nd do R. Warren, Niagara 1 50
3rd do J. G. Peneyck, Grimsby ..... Trans.
Best 8 peaches, yellow flesh, one variety, correctly named, H. J. Brown, Niagara 2
2nd do S. J. Brown, Niagara 1 50
3rd do E. C. Fearnside, Hamilton 1
Best collection grapes, grown to open air, not more than twelve varieties, 2 bunches each, J. C. Kilborn, Clinton, 3
2nd do Jas. Taylor, St. Catharines 2
3rd do W. A. Lottridge, Saltfleet 2
Best 6 varieties grapes, grown in open air, 2 bunches of each, J. C. Kilborn, Clinton 3
2nd do H. Fleming, Clinton 2
3rd do W. H. Brooking, Ancaster 1
Best 3 bunches do, one variety, correctly named, J. C. Kilborn, Clinton 3
2nd do D. Fleming, Clinton 2
3rd do Wm. A. Lethridge, Stoney Creek 1
Best collection of grapes, grown under glass, not more than twelve varieties, 1 bunch each, correctly named, E. Townsend, Hamilton 6
Best 2 bunches black Hamburg grapes, Richard Rowe, Hamilton 3
2nd do E. Townsend, Hamilton 2
Best 2 bunches black grapes, any other variety, E. Townsend, Hamilton 3
Best 2 bunches white grapes, grown under glass, correctly named, E. Townsend, Hamilton 3
2nd do R. Rowe, Hamilton 2
Best 6 nectarines, named, 2nd do, C. J. Miller, Niagara.. 3
Best 6 quinces, D. Vandusen, Grimsby 2
2nd do C. J. Miller, Niagara 1
Best green flesh melon, Thomas J. Dixon, Hamilton..... 2
do David Ewing, Barton 1
Best red or scarlet flesh melon, C. J. Miller, Niagara..... 3
2nd do David Ewing, Barton 1
Best water melon, John Freed, Barton 2
2nd do S. Sinfield, Barton 1

Best 12 intermediate or half-long carrots, H. Shaw, Hamilton ..... $ 2
2nd do D. Allan, Guelph 1 50
3rd do A. A. Baker do 1
Best 12 early horn carrots, E. C. Fearnside, Hamilton 2
2nd do S. N. Watts, ... 1 50
3rd do A. A. Baker, G... 1
Best 12 table ... D. Allan, Guelph 2
2nd do 1 50
3rd do A. 1
Best 6 roots of w... ..... Barton 2
2nd do 1 50
3rd do H. 1
Best 6 roots of ... . eld, Barton 2
2nd do ..... brooke 1 50
3rd do ..... do 1
Best dozen ... . Hykert, St. Catharines 2
2nd do ... Taylor, ... 1 50
3rd do J. Dixon, do 1
Best collection of capsicums (ripe), John Harker, Kingston Township 3
2nd do R. Pollock, Hamilton 2
3rd do Samuel Sinfield, Barton 1
Best 3 egg-plant fruit (purple) Judge Morrison, Toronto .. 2
2nd do L. Taylor, Barton 1 50
3rd do A. W. Taylor, Hamilton 1
Best 12 tomatoes (red), A. W. Taylor, Hamilton 2
2nd do David Ewing, Barton 1 50
3rd do John Harker, Kingston Township 1
Best 12 tomatoes (yellow), R. Pollock, Hamilton 2
2nd do John H... Frontenac 1 50
3rd do Samuel ... Hamilton 1
Best assorted collection of Tomatoes, J. D. Humphreys, Toronto 3
2nd do E. C. Fearnside, Hamilton 2
3rd do John Harker, Kingston Township 1
Best 12 blood beets, (long), G. J. Miller, Niagara 2
2nd do H. Barker, Hamilton 1 50
3rd do E. C. Fearnside, Hamilton 1
Best peck of white onions, Samuel Sinfield, Barton 2
2nd do A. W. Taylor, Hamilton 1 50
3rd do William Lottridge, Barton 1
Best peck of yellow onions, A. W. Taylor, Barton 2
2nd do Samuel Sinfield, Barton 1 50
3rd do Robert Simpson, Hamilton 1
Best peck of red onions, A. W. Taylor, Hamilton 2
2nd do James Berry, Barton 1 50
3rd do Robert Simpson, Hamilton 1
Best 2 quarts pickling onions, A. W. Taylor, Hamilton... 1 50
2nd do Samuel Sinfield, Barton 1
Best 12 white turnips (table), H. Barker, Hamilton 2
2nd do Samuel Sinfield, Barton 1 50
3rd do James Wilde, Hamilton 1
Best 12 yellow turnips (table), Samuel Sinfield, Barton.... 2
2nd do D. Ewing, Barton 1 50
3rd do R. Pollock, Hamilton 1
Best 12 ears sweet corn, fit for the table, R. Pollock, Hamilton 2
2nd do Samuel Sinfield, Barton 1 50
3rd do D. Ewing, Barton 1
Best 6 varieties of potatoes, for garden cultivation, half peck of each sort, named, Samuel Sinfield 2
2nd do E. Shaver, Hamilton 1 50
3rd do R. Shearer, Niagara 1
Best 3 summer or fall table squashes, Jas. Harvey, Barton 2
2nd do R. Pollock, Hamilton 1 50
3rd do George Hykert, St. Catharines 1
Best 3 winter table squashes, Wm. Lotridge, Barton 2
2nd do Walter Burgess, Etobicoke 1 50
Best and greatest variety of vegetables, distinct from other entries, each kind named, A. W. Taylor, Barton..... 4
2nd do R. Gutthrey, Toronto 3

EXTRA ENTRIES.

6 Leeks, Samuel Sinfield, Barton, commended.
Radishes, Samuel Sinfield, Barton, commended.
Rohr. Simpson, Hamilton, 3 heads Scotch kale, 50c.
David Ewing, Barton, 3 egg-plant fruit, white, commended.
Butter beans, David Ewing, commended.
Potato onions, A. W. Taylor, Hamilton, 50c.
Spanish onions, A. W. Taylor, Barton, 50c.
A. W. Taylor, Barton, West India gherkins, commended.
E. C. Fearnside, Hamilton, collection of herbs, $1.

CLASS XXXI.—PLANTS AND FLOWERS.—121 ENTRIES.

JUDGES.—Messrs. Chas. Sharpe, Guelph; Chas. Meston, Hamilton; Thos. Partridge, London; D. Culbert, St. Catharines; Thos. Buchanan, St. Catharines.

Best 12 dahlias, standard varieties, named, Geo. Leslie, Toronto $2
2nd do R. Parker, Hamilton 1 50
Best 12 bouquet dahlias, Geo. Leslie, Toronto 2
Best and largest collection dahlias, Geo. Leslie, Toronto.. 5
Best bouquet cut flowers (for table), J. & J. Nichol, Cataraqui 2
2nd do R. Rowe, Hamilton 1 50
3rd do John McLaren, Hamilton 1
Best hand bouquet, R. Rowe, Hamilton 2
2nd do E. Townsend, Hamilton 1 50
3rd do John Brown, Hamilton 1
Best collection of green-house plants, not less than 12 specimens, in flower, John Brown, Hamilton 5
2nd do E. Townsend, Hamilton 3
3rd do R. Rowe, Hamilton 2
Best 12 Pansies, J. & J. Nichol, Cataraqui 2
2nd do M. Flannegan, Kingston 1 50
3rd do E. C. Fearnside, Hamilton 1
Best 6 fuchsias in flower, E. Townsend, Hamilton 4
Best collection annuals in bloom, named, Ford & Hay, Waterdown 2
2nd do E. C. Fearnside, Hamilton 1 50
3rd do H. Gutthrey 1
Best 6 cockscombs, L. Taylor, Barton 2
2nd do John Brown, Hamilton 1 50
3rd do Luke Mullock, Waterdown 1
Best 6 balsams, in bloom, R. Rowe, Hamilton 2
2nd do A. W. Taylor, Barton 1 50
3rd do John W. Sinclair, Hamilton 1
Best 12 German asters, M. Flannegan, Kingston 2
2nd do J. & J. Nichol, Cataraqui 1 50
3rd do Geo. Leslie, Toronto 1
Best collection of asters, M. Flannegan, Kingston..... 2
2nd do J. & J. Nichol, Cataraqui 1 50
3rd do Ford & Hay, Waterdown 1
Best collection of 10 weeks stocks, E. C. Fearnside, Hamilton 2
2nd do E. Townsend, Hamilton 1 50
3rd do M. Flannegan, Kingston 1

Best collection of hybrid perpetual roses, named, George Leslie, Toronto $5
2nd do E. Townsend, Hamilton 3
Best 8 roses of any one variety, E. Townsend, Hamilton.. 3
Best floral ornament or d... R. Rowe, Hamilton 3
2nd do Wm. Calder, ... 2
3rd do E. Townsend, Ha...ton 1
Best 12 verbenas, named, John Sinclair, Hamilton 3
2nd do John Freed, Barton 1 50
3rd do Geo. Leslie, Toronto 1
Best collection of verbenas, named, John W. Sinclair, Hamilton 5
2nd do John Freed, Barton 2
3rd do J. & J. Nichol, Cataraqui 1
Best 6 petunias, J. Taylor, Barton 3
2nd " E. Townsend, Hamilton 1 50
3rd do E. C. Fearnside, Hamilton 1
Best collection perennial phloxes, Geo. Leslie, Toronto .. 2
2nd do M. Flannegan, Kingston 1 50
3rd do John Freed, Hamilton 1
Best 6 hardy shrubs, spikes in flower, Geo. Leslie, Toronto 3
Best collection of hollyhocks, E. Townsend, Hamilton.... 3
Best collection of gladiolus, J. A. Bruce & Co., Hamilton 2
2nd do M. Flannegan, Kingston 1 50
3rd do John Brown, Hamilton 1
Best collection of double zinnias, Ford & Hay, Waterdown 2
2nd do M. Flannegan, Kingston 1 50
3rd do H. Barker, Hamilton 1
Best display of plants in flower, distinct from other entries, John Brown, Hamilton 10
2nd do E. Townsend, Hamilton 6
3rd do R. Rowe, Hamilton 4

EXTRA ENTRIES.

John Freed, Barton, collection of verbenas ..... Commended.
John Brown, Hamilton, ornamental foliage plants and foreign ferns 10
E. Townsend, Hamilton, collection foliage plants..... 5
E. Townsend, Hamilton, collection foreign ferns 5
E. Townsend, Hamilton, collection zinnias 2

DAIRY PRODUCE, &c.

CLASS XXXII.—DAIRY PRODUCTS, HONEY, BACON, &C.—177 ENTRIES.

JUDGES.—Andrew Coulter, Thomasbourgh; Ed. Jeff, Bradford; Geo. Heek, Prescott; Geo. McDonnell, Williamstown; F. W. Fearman, Hamilton.

Best firkin of butter, in shipping order, not less than 56 lbs., W. Thompson, Beverley $12
2nd do G. Stranger, Nassagaweya 10
3rd do D. McDougall, East Flamboro' 8
4th do J. Coleman, Strabane 6
5th do R. Carnduff, Montagu 4
6th do Thos. Thompson, Beverley 2
Best butter, not less than 28 lbs., in firkins, crocks, or tubs, Thos. Thompson, Beverley 8
2nd do Wm. Thompson, Beverley 6
3rd do J. Liddic, Ancaster 4
4th do D. Clarke, Puslinch 2
5th do A. Smith, Ancaster 1
Best 3 factory cheese, not less than 50 lbs. each, with statement of number of cows and management of factory, T. Ballantyne, Downie 30
2nd do H. Ostrom, Huntingdon 25
3rd do G. Morton, South Crosby 20
Best cheese, dairy, not less than 30 lbs., J. McLaren, West Flamboro' 10
2nd do S. Malcolm, Beverley 8
3rd do Thos. D. Farley, Sidney 6
4th do T. Thompson, Williamsburg 4
Best 2 Stilton cheese, not less than 12 lbs. each, H. K. Parsons, Guelph 10
2nd do G. Morton, South Crosby 8
3rd do W. Forfar, Scarboro 6
Best honey in the comb, not less than 10 lbs., H. M. Thomas, Brooklin 4
2nd do J. Kirkland, Jr., Oneida 2
3rd do G. Bonnett, Cobourg 1 50
4th do S. H. Mitchell, Blanchard ..... Trans.
Best jar of clear honey, J. Reikland, Oneida 4
2nd do S. H. Mitchell, Blanchard 2
3rd do W. Telolemy, Binbrook 1 50
4th do G. W. King, Binbrook ..... Trans.
Best 30 lbs. maple sugar, cake, O. P. Mabee, Middleton.... 3
2nd do P. Hinman, Haldimand 2
3rd do R. Spooner, Kingston, ... 1
Best 30 lbs. maple sugar, soft or powdered, G. M. Gowell, Ancaster 3
2nd do F. Hinman, Haldimand 2
3rd do R. Spooner, Kingston Tp 1
Best side of cured bacon, J. Campbell, Hamilton 4
2nd do J. Park, Toronto 2
Best ham, cured, J. Campbell, Hamilton 3
2nd do J. Park, Toronto 2
3rd do J. Simons, London 1

EXTRA PRIZES.

Italian bees and Italian queen, J. H. Thomas, Brooklin.... 2
Maple molasses, O. P. Mabee, Middleton ..... Commended
Home-made bread, H. Husband, Nelson ..... Commended
Black Dees, A. D. Bayham ..... Commended
3 pine apple cheese, A. L. Reid, Frankville, N. Y. 4
Smoked tongue, spiced ham and bacon, veal hams, beef hams and sugar-cured hams, and cured shoulder of pork, J. Campbell, Hamilton ..... Diploma and 6
Spiced and dried beans, J. Park, Toronto 3
Dried beef and collection of cured meats, J. Campbell, Hamilton ..... Commended

IMPLEMENTS.

CLASS XXXIII.—AGRICULTURAL IMPLEMENTS, WORKED BY HORSE, STEAM, OR WATER POWER.—(203 ENTRIES.)

JUDGES.—A. H. Pauling———; John Jonkin, St. Catharines; A. D. Frazer, Hamburg; John Pratt, Cobourg; and P. M. Grover, Norwood.

Best portable steam engine for agricultural purposes, not less than six horse power, to be put in operation on the ground, F. G. Beckett & Co., Hamilton $30
Best iron plough, Jas. Condy, Bartonville ..... Diploma and 12
2nd do Geo. McSherry, Ingersoll 8
3rd do John Morley, Thorold 4
Best wooden plough, Adam Yocom, Walpole ..... Diploma and 12
2nd do James Lowrie, Sarnia 8
3rd do John Morley, Thorold 4
Best subsoil plough, John Morley, Thorold ..... Diploma and 12
2nd do Atkinson Bros. Etobicoke 8
Best double shear trench plough, John Watson, Dumfries, 10
2nd do John Nealds, Bowmanville 6
Best double moald plough, ... Thein, Guelph $10
2nd do John M... 6
Best gang plough, H. A. ...castle 12
2nd do Turnbull & Co., ...on 8
Best field or two-horse cultivator, iron, Joseph Lowrie, Sarnia 12
2nd do Isaac Wescott, Bowmanville 8
Best 2-horse cultivator, wood, T. & G. Morgan, Markham, 12
2nd do W. R. Gray, Dundas 8
3rd do D. W. Walton, King 4
Best horse hoe or single horse cultivator, iron, Isaac Wescott, Bowmanville 4
2nd do Turnbull & Co., Hamilton 3
3rd do John McKenzie, Trafalgar 2
Best horse hoe or single horse cultivator, wood, W. R. Gray, Dundas 4
2nd do John Watson, Dumfries 3
3rd do do do 2
Best land presser, A. Atkinson & Bro., Etobicoke 8
Best pair of iron harrows, Isaac Wescott, Bowmanville.. 8
2nd do Thomas Alexander, Esquesing 4
Best pair of wood harrows, James Pringle, East Zorra 6
2nd do George Carr, ... 4
3rd do I. ... Woodstock 2
Best wooden roller, John Watson, Dumfries ..... Diploma and 12
2nd do W... Freeman, Saltfleet 6
Best grain drill, ... Adams & Co., Ontario, New York, Diploma and 12
2nd do Maxwell & Whitelaw, Paris 8
3rd do James Scott, Dundas 4
Best seed drill for sowing two or more drills of turnips, mangels or other seeds, T. & W. Walker, Chinguacousy, 8
2nd do John Watson, Dumfries 6
3rd do T. & W. Walker, Chinguacousy 4
Best rowing machine, Haggert & Bros., Brampton, ... Diploma and $20
2nd do F. W. Glen, Gshawa 12
3rd do H. A. Massey, Newcastle 8
Best reaping machine, H. A. Massey, Newcastle, Diploma and $20
2nd do F. W. Glen, Oshawa 12
3rd do Haggert & Bros., Brampton 8
Best combined mower and reaper, J. Lawrence & Son, Trafalgar ..... Diploma and $20
2nd do Yale & Co., St. Catharines 12
3rd do John Forsyth, Dundas 8
Best horse rake, Yale & Co., St. Catharines 4
2nd do A. Anderson, London 3
Best horse pitchfork and tackle, J. G. Teneyck, Grimsby, 4
2nd do James Garratt, Malahide 3
3rd do G. N. Abrams, Gananoque 2
Best horse-power thresher and separator, John Abell, Vaughan ..... Diploma and $20
2nd do Haggert & Bros., Brampton 12
3rd do Yale & Co., St. Catharines 8
Best 2-horse team waggon, Wm. Hughes, Waterdown 12
2nd do A. Bradshaw, Ancaster 8
Best 2-horse spring market waggon, R. Hawthorn, Trafalgar 10
2nd do J. P. Pronguey, Hamilton 7
Best 1-horse light market waggon, J. P. Pronguey, Hamilton 9
Best farm aleigh, A. Bradshaw, Ancaster 8
Best brick-making machine, Copp & Bros., Hamilton 10
Best ditching plough, for ditching machine, for digging drains, John Abell, Vaughan 12
2nd do Wm. Vanbuskirt, St. Thomas 8

EXTRA ENTRIES.

Francis Roberts, Simcoe, a thistle cutter for a plough; cultivator ..... Commended
John Watson, Dumfries, pea cleaner and thresher ..... Diploma
A. Briggs, Wolfe Island, reel standard for reaping machine, ... Commended
James Walker, Whitby, wrought-iron beam plough 4

CLASS XXXIV.—AGRICULTURAL TOOLS AND IMPLEMENTS, CHIEFLY FOR HAND USE.—156 ENTRIES.

JUDGES.—David Dousley, Frankville; James Bedford, Stratford; and O. Clark, East Northumberland.

Best machine for making drain tiles, Wm. Campbell, Hamilton ..... Diploma and $20
Best assortment drain tiles, W. Gibbs, East Flamboro' 4
2nd do Jonas S. Barnes, St. Thomas 3
Best half-dozen steel shoes, Whiting & Cowan, Oshawa 0
2nd do do do do 2
Best half-dozen manure forks do do 4
2nd do do do do 2
3rd do do do do 1
Best half-dozen spading forks do do 3
Best seed drill, or barrow, for turnips, &c., John Westlock, Hope 4
2nd do T. & W. Walker, Chinguacousy 3
3rd do John Dodd, Beverly 2
Best machine for sowing grass seed, Geo. Murray, Westminster 4
Best garden walk, or land roller, H. A. Massey, Newcastle.. 4
Best half-dozen scythe snaiths, John Crawford, Sophiasburg. 3
2nd do Thomas Bryan, London 2
3rd do Jno. Crawford, Sophiasburg 1
Best grain cradle, Thomas Bryan, London 4
2nd do do do 3
Best half-dozen grass scythes, Whiting & Cowan, Oshawa .. 3
2nd do do do 2
3rd do do do 1
Best half-dozen cradle scythes do do 3
2nd do do do 2
3rd do do do 1
Best lawn mowing machine, A. Shanks & Son, Scotland... 6
Best half-dozen hay rakes, Thos. Bryan, London township.. 3
2nd do do do 2
3rd do John Combs, Saltfleet 1
Best half-dozen hay forks, Whiting & Cowan, Oshawa 3
2nd do do do 2
Best implement or machine for cutting, pulling, or otherwise harvesting peas, hand or horse power, A. Anderson, London 8
Best straw or barley fork, wood, J... Combe, Saltfleet $2
2nd do G. M. Howell, A... 1
3rd do Thomas Bryan, London township ..... Trans.
Best Fanning mill, W. A. G... ..., Arran, Diploma and.. 8
Best straw cutter, Maxwell & Whitelaw, Paris 4
2nd do Jno. Watson, Dumfries 2
3rd do Maxwell & Whitelaw, Paris 2
Best machine for cutting roots for stock, John Watson, Dumfries 6
2nd do Maxwell & Whitelaw, Paris 4
3rd do Hurd & Roberts, Hamilton 2
Best cheese press, R. Whitelaw, Woodstock 3
2nd do John Amor, Hamilton 2
Best churn, Fam. Stone, Ancaster 3
2nd do R. Dickhout, Dereham 2
Best cheese vat, L. F. Dungay, Norwich 3
Pellow & Walton, Oshawa ..... Diploma.
Best bee-hive, J. H. Thomas, Brooklin 3
2nd do S. H. Mitchell, Blanchard 2
3rd do A. D. Bacon, Bayham 1
Best half dozen axe handles, W. Lutes, Townsend 3
2nd do S. Washburn, South Dumfries 1
Best 6 chopping axes, J. Hourigan, Dundas 3
Best set horse shoes, R. Hawthorn, Trafalgar 2
Best 6 do Wm. Stephenson, Nassagaweya 1
Best ox-yoke and bows, Peter Musselman, Vaughan 2
2nd do J. Norrish, Nassagaweya 1
Best farm gate, B. Lewis, Melbourne 3
2nd do J. G. T. Munger, Colchester 2
3rd do S. Washburne, S. Dumfries ..... Trans.
Best specimen farm fence, wood, Stephen Washburne, South Dumfries 3
Best specimen wire fencing, not less than two rods, erected on the ground, B. Greening, Hamilton 3
2nd do do do 2
3rd do do do 1
Best wooden pump, Chas. Powell, York ..... Diploma and 4
2nd do Bliam Land, Nelson 3
3rd do D. C. Ferguson, Scarboro' 2

EXTRA ENTRIES.

Jonas S. Barnes, St. Thomas, socket pipes ..... Commended
M. L. Roberts, Grimsby, post and stake spade ..... Commended
Wm. Depew, Brantford, machine for sowing plaster, ashes, &c. ..... Commended
Chas. G. Cody, Dereham, machine for cooling milk, Commended
Wm. Gibbs, East Flamboro', stock brisk ..... Commended
John Amos, Hamilton, curd mill, commended; do, a street-cleaning machine ..... Commended
Thos. Forbar, Westerdown, washing machine and clothes-wringer ..... Commended
W. James, South Norwich, snow gate ..... Commended
F. Johnson & Sons, Yarmouth, Elgin, sledge and ..... Commended
Wm. Stephenson, handle for fanning mill ..... Commended
J. Hourigan, Dundas, 3 reaping and 3 mowing machines, knives and sections ..... Commended
John Combs, Saltfleet, gleaning rake and barn-door fastenings ..... Commended
John Cripper, Whitby, portable smoke-house ..... Commended
George Murray, Westminster, grain and grass-seed sower ..... Commended
S. Washburn, South Dumfries, set of farm-gate hinges, &c. ..... Commended
D. Codd, Ottawa, corn sheller ..... Commended
R. Lewis, Melbourne, bridge for spans of 100 or 200 feet ..... Commended
Do. model of hoisting apparatus, patterns for casting for hog scales ..... Commended
Hiram Land, Nelson, pump jointers ..... Commended
James Scott, Chatham, corn sheller and separator, Commended
Whiting & Cowan, Oshawa, straw forks, hay forks, turnip hoe, steel rakes, potato hooks, &c ..... Commended
D. Harris, Ingersoll, cheese curd drier ..... Commended
H. C Cope, Paris, churn dash ..... Commended
J. White, Hamilton, machine for making waggon wheels ..... Diploma

CLASS XXXV.—CATTLE FOOD, MANURES, AND MISCELLANEOUS.—(10 ENTRIES.)

JUDGE.—F. W. Clarke, Editor CANADA FARMER.

Best specimen oil cake, Lyman, Clare & Co., Montreal .. $4
2nd do T. J. Cottell, Woodstock 2
Best barrel ground bones, for manure, Trevaski & Bros., Hamilton 4
2nd do Martindale Bros., Seneca 2
Best barrel ground gypsum, for manure, Martindale Bros., Seneca 4

CLASS XXXVI.—CABINET WARE AND OTHER WOOD AND HAIR MANUFACTURES.—(77 ENTRIES.)

JUDGE.—B. Holden, Kingston; Hy. Schomberg, Toronto; H Cronkaite, Oakville.

CABINET WARE.

Best decorative carving in wood, T. Johnson, Darlington... $10
2nd do Heintzman & Co., Toronto 6
Best drawing-room sofa, T. Johnson, Darlington 8
Best set of drawing-room chairs, T. Johnson, Darlington... 8
Best inlaid work of Canadian woods, H. McWright, Hamilton 4
Best sideboard, T. Johnson, Darlington 8
2nd do F. Burrows, King 4

MISCELLANEOUS.

Best coopers' work, C. Lewis, Dereham 5
Best 2 doz. corn brooms, A. Easson, Hamilton 2
Best collection of handles for tools of carpenters, blacksmiths, watchmakers, gunsmiths, &c., T. Bryan, London 3
Best assortment of joiners' work, M. Breman, Hamilton 10
2nd do W. Wells, Barton 6
Best machine-wrought moulding and flooring, 100 feet of each, F. R. Scofield, Woodstock 8
2nd do J. Semmens & Co., Hamilton 3
Best assortment of turned hollow wooden ware, F. B. Scofield, Woodstock 4
Best undressed veneers from Canadian woods, F. F. Pardy & Bros., Monk 8
2nd do W. Clement, Mosa 4
Best dressed and polished veneers from Canadian woods, W. Foster, West Monckton 10
Best wash-tubs and pails, factory-made, three of each, C. Lowis, Dereham 4

EXTRA ENTRIES.

Banman & Wenzman, Preston, mouldings 3
R. Gage, Kingston, quilting frame 1
Thomas Johnson, Darlington, 6 cain chairs 3
R. S. Wood, Oakville, washing machine 2

T. W. King, Nelson, shingles $2
J. Semmens & Co., Hamilton, bed for invalids 1 50
R. Forbes, Pusline, sawed shingles 2
A. Lamson, H milton, corn brushes 1
J. Semmens & Co., Hamilton, set of croquet 4
J. Thompson, Toronto, bagatelle board 3
R. W. Laird, Toronto, washable gilt moulding 2
A. McCorkill, Kingston, pleasure skiff 5
W. Foster, Elma, wood 1
S. Pocock, Woodstock, Venetian blinds 2
K. Kreighoff, Toronto, spring bed bottom 3
J. W. Klinmunner, St. Catharines, housekeepers' safe and kitchen cabinet 1
J. Rana, Hamilton, one croquet set 1 50
J. Tomlinson, Thornhill, steam coil hoops 1 50
W. Hendrie, combined chair and cradle 2
Thos. Ward, Bruce Mines, Indian hay and bark work 3
Gokey & Co., Evamcus, wooden clothes horse 3
Saunders & Phelps, St. Catharines, king bolts 2
E. & C. Gurney, Hamilton, thimble for waggons 3
Webber & Co., Hamilton, collection of carriage seats 2
R. McKinley, St. Catharines, sulky stuff ..... Commended.

CLASS XXXVII.—CHEMICAL MANUFACTURES AND PREPARATIONS.—(29 ENTRIES.)

JUDGES.—Dr. Beatty, Cobourg; Dr. May, Toronto.

Best glue, 14 lbs., F. Fischer, Sons, Waterloo $3
Best medicinal herbs, roots and plants, native growth, J. Harker, Kingston 12
2nd do A. Bond, Storrington 7
3rd do Lyman & Clare, & Co., Montreal 5
Best resin, 30 lbs., W. C. Irish, Brighton 5
2nd do T. J. Cottle, Woodstock 4
Best tar, 1 gallon, W. C. Irish, Brighton 3
Best spirits of turpentine, 1 gallon, W. C. Irish, Brighton.. 5

EXTRA ENTRIES

Hugh Miller, Toronto, illuminating burning fluid 1
A. M. Foster, Hamilton, boiler purger 2
W. Edgar, Hamilton, manufactured peat ..... Diploma.
Canadian Gil Co., Hamilton, burning oil 2
McKenzie & McKay, Hamilton, lubricating oil 2
Do do do paint oils 2
E. Daly, Hamilton, prepared medicines ..... Commended.
Canada Gil Co., Hamilton, samples of machinery 2

CLASS XXXIX.—DRAWINGS, ARCHITECTURAL AND MECHANICAL, ENGRAVINGS, BUILDING MATERIALS AND CONSTRUCTION, POTTERY, &C.—(75 ENTRIES.)

JUDGES.—John Shier, Whitby; Jas. Smith, Toronto.

Best drawings, architectural, geometrical and perspective view, R. Stevens, Woodhouse $4
Best drawing of machinery, in perspective, 2nd do W. Leith, Hamilton 4
Best decorative house painting, D. H. Kronger, Hamilton.. 6
Best engraving on wood, with proof, J. Perry, London..... 4
Best engraving on copper, with proof, J. T. Rolph, Toronto 6
Best filterer for water, W. Campbell, Hamilton ..Diploma and 3
Best geometrical drawings of engine or mill work, R. Stevens, Woodhouse 5
2nd do W. Leith, Hamilton 4
Best lithographic drawing, plain, W. C. Chowett, & Co., Toronto 6
2nd do J. T. Rolph, Toronto 4
Best lithographic drawing, colours, printed, J. T. Rolph, Toronto 6
2nd do W. C. Chewett & Co., Toronto 4
Best lithography, commercial work, in black or colours, W. C. Chewett & Co., Toronto 6
2nd do Brown & Bautz, Hamilton 4
Best mantelpiece, in marble, Hard & Roberts, Hamilton ... $8
Best mathematical, philosophical and surveyor's instruments, collection of, C. Foster, Toronto 15
Best modelling in plaster, Teall & Wilkins, London..... 6
2nd do R. McKay, Hamilton 4
Best monumental headstone, Hard & Roberts, Hamilton... 5
Best picture frame, ornamented, gilt, H. Blandford, Hamilton 8
Best pottery, an assortment, W. Campbell, Hamilton..... 6
Best sewerage pipes, stoneware, assortment of sizes, W. Campbell, Hamilton 3
2nd do Plant & Warwood, Yorkville 5
Best sign writing, G. & W. Booth, Toronto, Diploma and... 5
Best slates for roofing, Melbourne Slate Company 6
2nd do Granby Red Slate Company, Montreal 4
Best stained glass, collection of specimens, J. McCausland, Toronto 12
Best stench traps for drains, stoneware, Plant & Warwood, Yorkville 3
2nd do W. Campbell, Hamilton 2
Best assortment of stoneware, W. E. Weldlog, Brantford.. 8

EXTRA ENTRIES.

L. H. Brooks, Hamilton, specimens of glassware 3
Dra. H. & A. McLaren, Strathroy, artificial leg 3
St. Lawrence Glass Company, Montreal, specimens of glassware 4
Granby Red Slate Company, Montreal, marbleized slate... Diploma
Do do do water tank slate..... Com.
W. C. Chowett & Co., Toronto, chemists' cards ..... Commended.
Do do manufacturers' labels Commended.
W. Campbell, Hamilton, lawn vases ..... Highly Commended.
Wm. Raspberry, West Flamboro, cement stove pipe Commended.
Brown & Bautz, Hamilton, lithography on tin or iron 3
Do do engraving on stone..... 4
J. T. Rolph, Toronto, specimens of dies, cut and stamped, in colours 4
Do do engravings 3
Do do monograms 2
R. Phillips, Toronto, washable gilt rosewood mouldings.... 3
Danville School Slate Company, sample of school slates..... 3
W. B. Hall, Wellington Square, topographical drawing, Brant block ..... Commended,
do do do do
Brant or Kerr farm ..... Commended.
J. T. Rolph, Toronto, business cards 2
Do do visiting do 2
R. Phillips, Toronto, washable, gilt-mould looking-glass frame 2

CLASS XL.—FINE ARTS.—(197 ENTRIES.)

JUDGES.—D. Fowler, Amherst Island; Wm. Armtrong, Hamilton; J. D. Humphreys, Toronto.

PROFESSIONAL LIST.—OIL.—(ORIGINALS.)

All views from nature, in any section of this or next class, to have attached the name of locality, or other necessary particulars, where view was obtained.

Best any subject, R. Whale, Burford $16
2nd do T. M. Martin, Toronto 10
Best animals, from life, T. M. Martin, Toronto 12
2nd do R. Whale, Burford 8
Best flowers, grouped or single, J. Griffiths, London 10
Best historical or general figure subject, F. B. Faint, Toronto 12
2nd do T. M. Martin, Toronto 8
Best landscape, Canadian subject, F. A. Vernon, Toronto... 13
2nd do T. M. Martin, Toronto 8
3rd do A. Davidson, Hamilton 5
Best landscape or marine painting, not Canadian subject, J. H. Whale, Burford 10
2nd do R. Whale, do 6
Best marine painting, Canadian subject, J. C. Forbes, Toronto 12
2nd do T. M. Martin, do 8
Best portrait, B. Irwin, Toronto 10
2nd do J. C. Forbes, do 7
3rd do F. A. Vernon, do 4
T. M. Martin, Toronto, and Robert Whale, Burford.. Commended.
Best still life, T. M. Martin, Toronto 10
2nd do R. Rattray, do 6

AMATEUR LIST—OIL (ORIGINALS).

Best animals from life, E. E. E. Courlay, Hamilton $8
2nd do Mrs. D. B. Galbraith, Hamilton 5
Best landscape or marine view, Canadian Subject, J. C. Whale, Burford 8
2nd do Miss R. Barnes, Hamilton 5
Best portrait, Mrs. M. J. Olmsted, Saltfleet 8

AMATEUR LIST—OIL (COPIES).

Best animals grouped or single, E. E. E. Gourlay, Hamilton $7
2nd do Mrs. D. D. Galbraith, Hamilton 4
Best flowers, grouped or single, Mrs. D. B. Galbraith, Hamilton 7
Best historical or general figure subject, Mrs. Blackwell, Dundas 7
2nd do Miss Ford, Toronto 5
Best landscape, J. C. Whale, Burford 7
2nd do Miss S. Beamer, Hamilton 4
Best marine view, J. C. Whale, Burford 7
2nd do R. Crockett, Hamilton 4
Best portrait, Mrs. Blackwell, Dundas 7
Best still life, J. C. Whale, Burford 7

PROFESSIONAL OR AMATEUR—FIGURE SUBJECTS (ORIGINALS).

Best carving in stone, in relief, Teall & Wilkins, London... $12
Best Model in clay or wax, with plaster cast, Teall & Wilkins, London 10
2nd do Mrs. Maccarthy, Hamilton 6

PHOTOGRAPHY.

Best collection of ambrotypes, Forest & Lozo, Toronto..... $6
Best collection of photograph portraits, in duplicate, one set coloured, R. D. Ewing, Toronto 10
2nd do F. A. Baker, Ingersoll 6
Best collection of photograph portraits, plain, Forest & Lozo, Toronto 8
2nd do R. D. Ewing, Toronto 5
Best photograph portrait, finished in oil, J. W. Bridgeman, Toronto 6
2nd do F. A. Vernon, Toronto 4
Best photograph portrait, finished in Indian ink, Forest & Lozo, Toronto 6
Best photograph portrait, finished in water colors, R. D. Ewing, Toronto 6
2nd do Forest & Lozo, Toronto 4

EXTRA ENTRIES.

R. D. Ewing, Toronto, enlargements from small portrait, highly commended.
Mrs. H. Gilkinson, Hamilton, decalcomanie pictore, Diploma.
Forest & Lozo, Toronto, photograph on porcelain, Diploma.
Do do portraits done in water and oil, commend'd.
W. D. Capon, Toronto, collection decalcomanie pictores, Diploma
Forest & Lozo, Toronto, portraits on porcelain, Diploma.

CLASS XLI.—FINE ARTS.—(294 ENTRIES.)

JUDGES.—Wm. N. Cresswell, Seaforth; James Spooner, Toronto.

PROFESSIONAL LIST.—(ORIGINALS.)

(Definitions same as in previous class.)

WATER COLORS.

Best any subject, D. Fowler, Amherst Island $10
Extra do C. S. Millard, Toronto 8
Do do S. M. B. Smith, Toronto 4
Do do H. Martin, Toronto ..... Commended.
Do do James Griffiths, London ..... Commended.
Best animals from life, D. Fowler, Amherst Island 8
2nd do T. H. Caddy, Hamilton 6
Best flowers, grouped or single, D. Fowler, Amherst Island, 7
2nd do J. Griffiths, London 6
Extra do Mrs. J. Fitzgibbon, Toronto ..... Highly commended
Do do H. Martin, Toronto ..... Commended.
Best historical or general figure subject, C. S. Millard, Toronto 8
2nd do D. Fowler, Amherst Island 6
Best landscape, Canadian subject, F. A. Vernon, Toronto. 8
2nd do H. Fowler, Amherst Island 6
3rd do J. H. Caddy, Hamilton 4
Best landscape or marine view, not Canadian subject, C. S. Millard, Toronto 8
2nd do D. Fowler, Amherst Island 6
3rd do T. H. Caddy, Hamilton 4
Best marine view, Canadian subject, D. Fowler, Amherst Island 8
2nd do H. Martin, Toronto 6
Best Portrait, D. Fowler, Amherst Island 7
Best still life, J. Griffiths, London 7
2nd do D. Fowler, Amherst Island 5

PENCILS, CRAYONS, &C.

Best crayon, colored, D. Fowler, Amherst Island 6
2nd do Miss Meaghan, Toronto 4
Best crayon, plain, D. Fowler, Amherst Island 6
2nd do Miss A. Reid, Hamilton 4
Best crayon or pencil portrait, D. Fowler, Amherst Island. 6
2nd do Miss S. Mundy, Hamilton 4
Best pen and ink sketch, D. Fowler, Amherst Island 6
Best pencil drawing, D. Fowler, Amherst Island 6
2nd do Mrs. M. Young, Nichol 4
Best sepia drawing, D. Fowler, Amherst Island 6
2nd do J. H. Caddy, Hamilton 4

AMATEUR LIST (ORIGINALS).

Best flowers, grouped or single, Miss Denison, Toronto..... 6
2nd do Miss R. Barnes, Hamilton 3
Best historical or general figure subject, A. E. Walker, Hamilton 5
Best landscape or marine view, Canadian subject, R. F. Gagen, Seaforth 7
2nd do Miss J. Gordon, Toronto 5

PENCILS, CRAYONS, &C.

Best Crayon, colored, Miss G. McKenzie, Hamilton 5

AMATEUR LIST—(COPIES) WATER COLOURS.

Best animals grouped or single, Mrs. D. B. Galbraith, Hamilton 5
2nd do Miss Palmer, Guelph 3
Best flowers, grouped or single, 2nd, Miss D. Wilson, East Flamboro' 3
Best historical or general figure subject, Miss J. Gordon, Toronto 5
2nd do H. Crockett, Hamilton 3
Best landscape, Miss R. Hallen, Penetanguishine 5
2nd do Robert F. Gagen, Seaforth 4
Best marine view, Robt. F. Gagen, Seaforth 5
2nd do Wm. Leggo, Hamilton 3

PENCILS, CRAYONS, &C.

Best crayon, coloured, Miss B. Gunn, Toronto $4
2nd do Miss J. F. Dixon, Toronto 2
Best crayon, plain, Miss B. Gunn, Toronto 4
2nd do Miss Palmer, Guelph 2
Best crayon, a pencil portrait, Miss Risley, Toronto..... 4
2nd do Miss Machar, Kingston 2
Best pen and ink sketch, J. T. Rolph, Toronto 4
2nd do J. J. McKay, Hamilton 2
Best pencil drawing, Miss Ewart, Toronto 4
2nd do A. H. Askin, Hamilton 2
Best sepia, J. T. Rolph, Toronto 4
2nd do A. H. Askin, Hamilton 2

EXTRA ENTRIES.

Robt. F. Gagen, Seaforth, still life (original).. ..... $5
J. B. Mackenzie, Hamilton, collection of postage stamps, 2
Miss B. Gunn, Toronto, water colour, finished in crayon.. 3

CLASS XLII.—GROCERIES AND PROVISIONS.—(74 ENTRIES.)

JUDGES.—Peter Murdoch, Bowmanville; G. Bennett, Cobourg; George M. Pirie, Dundas.

Best barley, pearl, 25 lbs., R. King, Hamilton $3
2nd do J. Cox, Ancaster 2
Best barley, pot, 25 lbs., J. Russell, Pickering 3
Best bottled fruits, an assortment, manufactured for sale, J. Lyons, Flamboro' West 6
2nd do Mrs. J. Aitchison, Hamilton 4
Best bottled pickles, an assortment, manufactured for sale, G. F. Moore, Toronto 6
2nd do Miss M. Davis, Nelson 4
Best buckwheat flour, 25 lbs., R. King, Hamilton 3
2nd do J. Cox, Ancaster 2
Best candles, tallow, 10 lbs., A. Watts, Brantford 3
Best chickory, 20 lbs., prepared, G. Fears, Toronto 3
Best Indian corn meal, 25 lbs., G. Davis, Nelson 3
2nd do H. M. Thomas, Brooklin 2
Best oatmeal, 25 lbs., J. Russell, Pickering 3
Best sauces for table use, an assortment, manufactured for sale, G. F. Moore, Toronto 6
2nd do F. A. Lyons, West Flamboro' 4
Best soap, one box of common, A. Watts, Brantford..... 4
Best soaps, collection of assorted fancy, A. Watts, Brantford 6
Best starch, 12 lbs. corn, Edwardsburg Starch Company, Montreal 2

Best tobacco, 14 lbs., Canadian manufacture, F. Schwarz, Hamilton $5
2nd do Tuckett & Billings, Hamilton 3
Best wheat flour, 50 lbs., F. D. Wilson, Tilsonburg 5
2nd do R. King, Hamilton 3

EXTRA ENTRIES.

G. F. Moore, Toronto, assortment of jellies for table use, Commended
N. F. Birely, Hamilton, white wine and pickling vinegars, Commended
R. Ramsford, Clinton, salt for table use $2
M. Morrison, Toronto, quinine ale ..... Commended
W. T. Ecclestone, Hamilton, assortment of confectionary and bride's cake, plain and fancy biscuits, highly commended
R. Pike, Hamilton, assortment of cigars $3
G. F. Moore, Toronto, sample of raspberry vinegar, highly commended.
J. May, Goderich, salt ..... Highly commended
Geo. Pears, Toronto, prepared Java coffee ..... Commended
Jas. Russell, Pickering, 25 lbs., split peas 2
Geo. Pears, Toronto, assortment of spices ..... Commended
W. T. Ecclestone, Hamilton, samples of cigars $2

CLASS XLIII.—LADIES' WORK.—(325 ENTRIES.)

JUDGES.—Mrs. Fitzgibbon, Toronto; Miss C. Stephens, Cobourg; Mrs. Col. Gourlay, Hamilton.

Best bead work, Miss M. Wilson, Hamilton $3
2nd do Mrs. M. Bates, Hamilton 2
3rd do Mrs. D. Banghart, Caradoc 1
Best braiding, Mrs. M. Bates, Hamilton 2
2nd do Miss H. Hough, Cobourg 1
3rd do Miss Ramsay, Pittsburg 1
Best crochet work, Mrs. McGregor, Galt 2
2nd do Mrs. Simpson, Hamilton 1
3rd do Miss H. Bidwell, Cramahe 1
Best embroidery in muslin, Miss H. Pettit, Trafalgar 3
2nd do Mrs. Rolston, Toronto 2
3rd do Mis H. Bidwell, Cramahe 1
Best embroidery in cotton, Miss Ramsay, Pittsburg 3
2nd do Miss H. Bidwell, Cramahe 2
3rd do Mrs. M. Bates, Hamilton 1
Best embroidery in silk, Miss M. Dorrity, Hamilton..... 3
2nd do Mrs. H. Hough, Cobourg 2
3rd do Miss F. Brown, North Dumfries 1
Best guipure work, Miss H. Bidwell, Cramahe 2
2nd do Mrs. M. Bates, Hamilton 1
3rd do Miss McMillan, Galt 1
Best knitting, Miss A. R. Choate, Ingersoll 3
2nd do Mrs. J. Sloman, Barton 2
3rd do Miss E. Miller, Galt 1
Best lace work, Mrs. J. Crang, Toronto 3
2nd do Miss H. Bidwell, Cramahe 2
Best machine sewing (family), Mrs. M. Mueller, Hamilton 3
2nd do Mrs. T. Bain, Hamilton 2
3rd do Mrs. C. Lewis, Dereham 1
Best needle work (ornamental), Miss J. Fothergill, Hamilton 3
Best netting (fancy), Mrs. E. Carey, Brantford 3
2nd do Mrs. G. Rykert, St. Catharines 2
Best quilt silk, Mrs. S. Shannon, Carrick 3
2nd do Miss McMillan, Galt 2
3rd do Mrs. W. Leith, Hamilton 1
Best quilt, patch work, Mrs. Hamilton, East Oxford 3
2nd do Mrs. J. Parks, Oxford Centre 2
3rd do Miss L. Dean, Hamilton 1
Best rag carpet J. McGregor, Nelson 3
2nd do S. Moffatt, North Dumfries 2
3rd do Mrs. G. Rykert, St. Catharines 1
Best rag mat, Mrs. J. G. Freeman, Hamilton 2
2nd do Mrs. A. Freeman, Saltfleet 1
3rd do Mrs. A. Freemon, do 50c
Best shirt, gentlemen's, Caroline McEvers 3
2nd do Miss Gwine, Hamilton Tp 2
3rd do Miss E. F. Storms, Odessa 1
Best tatting, Miss L. Beatty, Cobourg 3
2nd do Rev. Mrs. Cartwright, Hamilton 2
3rd do Miss McMillan, Galt 1
Best Indian bead work, Frank McDougall, Caughnawaga ... 2
Baptist Jock do do 75c
Catharine do do 75c
Mrs. White do do 75c
Susan do do 75c
Ann No. 2, do do 75c

EXTRA ENTRIES.

Miss H. Bidwell, Cramahe, applique 2
Mrs. M. Easso, East Flamboro', knitted quilt ..... Commended
Mrs. J. Park, East Oxford, fancy quilt ..... Highly Commended
Miss J. Brown, North Dumfries, embroidered merino shawl ..... Commended
Miss G. Baughart, Caradoc, 2 sets under clothes, Highly Commended
Miss C. Warren, Toronto, lady's paper hats 2
Miss. A. Scott, Toronto, knitting, tatting, &c., done by little girls in the Protestant Orphan's Home 5
Mrs. A. J. Smith, Toronto, white quilt 2
Mrs. G. W. Linton, Hamilton, collars and cuffs, &c., (hem stitch) ..... Commended
Mrs. A. Storm, Odessa, medley ..... Highly Commended
Mrs. J. Parkes, Oxford Centre, fancy quilt ..... Commended

CLASS XLIV.—LADIES' WORK.—(215 ENTRIES.)

FLOWER, HAIR, MOSS, WAX, AND WORSTED WORK, &C.

JUDGES.—Mrs. Wagstaff, Dundas; Mrs. Stephens, Cobourg; Mrs. Cowing, Hamilton.

Best cone work, Mrs. J. Amor, Hamilton $3
2nd do Mrs. A. Storms, Odessa 2
Best flowers, silver wire, Mrs. A. Storms, Odessa 1
2nd do Mrs. E. F. Storms 50c
Best flowers, feather, Mrs. E. W. Tisdale, Borford 2
2nd do P. Dewitt, Tappletown 1
3rd do Mrs. Freeman, Saltfleet 50c
Best gloves, 3 pairs, Mrs. Hinman, Haldimand 2
2nd do J. H. Rutherford, Dumfries 1
3rd do Mrs. J. Grant, Puslinch 50c
Best hair work, Miss Mitchell, Hamilton 3
2nd do Mrs. S. Sawyer do 2
3rd do Mrs. McCallum do 1
Best mittens, two pairs woollen, Mrs. J. Grant, Puslinch, 2
2nd do Mrs. Hinman, Haldimand 1
3rd do Mrs. E. Walker, Onondaga 50c
Best moss picture, Mrs. K. Tully, Toronto 3
2nd do Mrs. J. Park, East Oxford 2
3rd do C. H. Beasley, Hamilton 1
Best moss work, Mrs. A. Storms, Odessa 2
2nd do Miss E. F. Storms, Odessa 1
3rd do Mrs. M. J. Logan, Hamilton 50c
Best shell work, Mrs. A. W. Ryckman, West Flamboro' ... 2
2nd do Mrs. M. Glover, Burford $1
3rd do Mrs. A. Storms, Odessa 50c
Best socks, 3 pairs woollen, Mrs. P. Hinman, Haldimand.. 2
2nd do J. H. Rutherford, Dumfries 1
3rd do Mrs. J. Park, East Oxford ..... 50c.
Best stockings, 3 pairs, woollen, Miss McMillan, Galt..... 2
2nd do Mrs. A. Marshall, Barton 1
3rd do Mrs. L. Dean, Hamilton ..... 50c.
Best wax flowers, Mrs. S. Sawyer, Hamilton 3
2nd do Mrs. Wolverton, Grimsby 2
3rd do Miss Bignall, Brantford 1 50
Best wax fruit, Mrs. Wolverton, Grimsby 5
2nd do Miss C. McEwen, Hamilton township 3
Best collection of wax shells, Miss Chapman, Wellington Square 5
Best worsted work, Miss C. E. Mackelton, Hamilton..... 3
2nd do Mrs. Rykert, St. Catharines 2
3rd do Miss Ramsay, Pittsburg 1
Best fancy worsted work, for framing, Miss R. Miller, Galt. 2
2nd do Miss Ramsay, Pittsburg 1
Best raised worsted work, Miss H. Gerrie, Whitby 3
2nd do Mrs. S. Spencer, Hamilton 2
Best flower wreath, Miss C. Warren, Toronto 2
Best seed wreath, Miss M. J. Logan, Hamilton 2
2nd do Miss E. Vanderlip, Brantford 1
3rd do Mrs. J. Park, East Oxford ..... 50c.

EXTRA ENTRIES.

Miss S. Beamer, Hamilton, skeleton leaves 3
Mrs. J. Park, East Oxford, Berlin wool ..... Highly commended
Mrs. J. M. Williams, skeleton leaves 2
Mrs. J. Amor, Hamilton, wax grapes 1
Miss Ramsay, Pittsburg, knitted quilt ..... Commended.
do do do gentlemen's knitted woollen shirt, Commended.
C. E. Mackelcan, Hamilton, four tatted lappets ..... Commended.
Mrs. S. A. Macdonald, Toronto, paper flowers ..... Commended.
Mrs. A. Gilkinson, Hamilton, imitation papier maché boudoir set ..... Commended.
Miss C. Warren, Toronto, Rice basket ..... Commended.
Miss Moore, Brantford, two sea weed baskets, Highly commended.
Miss Spencer, Hamilton, woollen afgan 3
Miss Nichols, Barton, bouquet of wild grasses, leaves and berries 1 50
Miss Bignall, Brantford, wax vase 2

CLASS XLV.—MACHINERY, CASTINGS AND TOOLS.—(149 ENTRIES.)

JUDGES.—James Crossin, Cobourg; Walter Bastable, Dundas; H. H. Date, Galt; Thomas Morrow, Cobourg.

[The sewing machines in this class were tested in accordance with rules made known at the time of exhibition.]

Best blacksmiths' bellows, J. Dallyn & Son, Hamilton..... $6
Best card clothing, assortment of, Eyre Thurgeson, Ancaster 4
2nd do J. Forsyth, Dundas 3
Best castings for railways, railroad cars and locomotives, assortment, W. A. Robinson, Hamilton 20
Best cord-wood sawing machine, horse-power, B. Mitchell, Millbrook 10
Best hand-power weaving loom, W. Barker, Hope 8
2nd do Dean & Crandell, Woodhouse 4
Best engine, steam, stationary, of one to four horse-power, in operation, W. Hamilton & Son, Toronto.... Diploma and 15
Best engine, steam, stationary, five horse-power and upwards, in operation, C. H. Waterous & Co., Brantford. 25
2nd do F. G. Beckett & Co., Hamilton 15
Best fire engine, hand-power, C. L. Merrill, London... Dip. and 15
Best machines for planing and drilling metals, McKechnie & Bertram, Dundas 12
Best pump in metal, C. L. Merrill, London 5
Best refrigerator, McKelvey & Birch, Kingston 6
Best saws, an assortment, J. Flint, St. Catharines 10
2nd do Emerson & Cory, Newark, N. J. 6
Best saw-mill, steam, in operation, C. H. Waterous & Co., Brantford 25
Best sash and moulding machines, McKechnie & Bertram, Dundas 12
Best sewing machines, manufacturing, R. M. Wanzer & Co., Hamilton 7
2nd do C. W. Williams, Montreal 5
Best sewing machine, family, R. M. Wanzer & Co., Hamilton ..... Diploma and 7
2nd do C. Irwin & Co., Belleville 5
Best sewing machine, button-hole, Singer & Co., New York 5
Best sewing machine, embroidery, R. M. Wanzer & Co., Hamilton 6
Best sewing machine, single thread, G. W. Gates & Co., Toronto 5
2nd do J. W. Abbott, St. Catharines 3
Best sewing machine, wax thread, Norris Black, Toronto.. 5
Best scales, platform, Ware, Gurney & Co., Hamilton..... 6
Best scales, counter, do do do 4
Best shingle-splitting machine, C. H. Waterous & Co., Brantford 8
Best spinning machine, Jno. Lozier, Belleville 4
2nd do Freeman Green, Stony Creek 3
3rd do S. Dill ..... Commended.
Best tools for working in metals, McKechnie & Bertram, Dundas 12
Best turning lathe, McKechnie & Bertram, Dundas 8
Valves and gearing, for working steam expansively in model or otherwise, W. A. Robinson, Hamilton 12

EXTRA ENTRIES.

C. H. Waterous, Brantford, lath machine 4
Do do Boring machine 3
Do do Custom roll machine 4
Do do Manufactiuring cloth sheer 3
Do do Custom cloth sheer ..... Commended.
Do do Toazle gig 2
Do do Set of scouring rollers 2
Do do Iron frame cloth press 2
Do do Card grinder 2
Do do Measuring and winding machine.. Com.
Little, Maw & Co., Dundas, hub mortising machine 6
Geo. Campbell, Toronto, blacksmith's portable fan-forge... 4
I. VanGunten, Blenchard, watchmaker's clock lathe..... 3
McKechnie & Bertram, Dundas, planing and matching machine 8
Do do shaping machine 6
W. A. Robinson, foreman Great Western Railway Engine Works, Hamilton, collection of locomotive engine machinery ..... Diploma and 20
Norris Black, Toronto, hand-pegging machine 4
Lamb Knitting Co., Rochester, N. Y., knitting machine .. 6
McKechnie & Bertram, Dundas, power mortising machine 6
Eyre Thorneson, Ancaster, card ... ing machine .. 6
H. T. Smith, Toronto, soda water ... ine 5
Jas. Dallyn & Son, Hamilton, portable forge 5
Do Hand bellows 3
A. Elgelow, Hamilton, joint for coupling shafting 3
Jones & Co., Markham 5
H. T. Smith, Toronto, 8 draught tubes 2
Do. 2 iron cylinders 2
Copp Bros., parallel vice 2
Do Turner's fire pot 1
Do Stove pipe thimble 1
Goldie, McCulloch & Co., Galt, traverse carl grinder 2
Do Waste wool cleaner 3
D. P. Levallee, Hamilton, model steam boat ..... Commended.
W. A. Robinson, Hamilton, model of improved valve moule gradustor 4
C. Goodall, Toronto, patent stove-pipe fastener $2
T. W. Walker, London, stove-pipe damper ..... Diploma
Booth & Son, Toronto, stove-pipe damper ..... Diploma
J. Morrison, Toronto, steam gauges $3
Do beer pumps 3
H. T. Smith, Toronto, brass work ..... Diploma and 3
S. North, Hamilton, hot-air furnace $3
Do drum heater, and coal drum heater 6
H. T. Smith, Toronto, brass counter fence 1
J. H. Boughner, Clinton, stove drum heater ..... Diploma
Copp Bros., Hamilton, hotel stove 3
M. C. Lntz & Co., Galt, assortment hot-pressed nuts 3
A. Howie, Hamilton, silver-plated hotel desk ..... Diploma
J. Law, London, assortment brass and silver-plated door furniture $3
Do do do 6
N. L. Piper & Son, Toronto, mailchoms ventilator 3
Patch Bros., Whitby, one patent dumb stove 3
John Mills, Hamilton, one wood hot-air furnace 4
4 Registers ..... Diploma and $3
Dining-room stove 3
Canadian Screw Co., Dundas, assortment of wood screws, 3
John Boxall, Toronto, ventilator ..... Diploma
Do railroad lamp $3
Copp Bros., Hamilton, agricultural furnace ..... Diploma
John Boxall, Toronto, locomotive head lamps 5
Copp Bros., Hamilton, assortment of sad or smoothing iron 2

CLASS XLVII.—MUSICAL INSTRUMENTS.—(29 ENTRIES.)

JUDGES.—R. S. Ambrose, Hamilton; W. Burrows, Kingston; J. D. Humphreys, Toronto.

Best harmonium, Bellwood & Co., Guelph $12
1st equal, Coleman & Sons, Toronto 12
2nd do T. W. White, Hamilton 8
Best melodeon, Bellwood & Co., Guelph 6
2nd do Coleman & Sons, Toronto 4
Best piano, square, Heinzman & Co., Toronto, Diploma and 15
2nd do Chas. L. Thomas, Hamilton 10
J. F. Rainer, & Co., Whitby, extra 7
Heinzman & Co., Toronto ..... Highly Commended.
Best piano of any kind, J. F. Rainer & Co., Whitby, Diploma and 15

EXTRA ENTRIES.

Heinzman & Co., Toronto, music stool 1 50
T. W. White, Hamilton, cabinet organ case 8

CLASS XLVIII.—NATURAL HISTORY.—(13 ENTRIES.)

JUDGES.—Dr. May, Toronto; T. McIlwraith, Hamilton.

INSECTS.

Best collection of native, classified, and common and technical names attached, R. Gourly, Hamilton 8

CLASS L.

... native, ... and classified, W. P. ... ton $8

PLANTS.

... of native, arranged in their natural families, and named, A. Logie, Hamilton 3

EXTRAS.

W. ... Hamilton, rock salt, imported ..... Commended.
... son, Ancaster, collection of moths and butterflies.. 3
... Toronto, butterflies and beetles 3
... Company, sulphate of baryta, lead ore 3

CLASS XLIX.—PAPER, PRINTING, PENMANSHIP, BOOKBINDING AND TYPE.—(81 ENTRIES.)

JUDGES.—Wm. Brown, Hamilton; Wm. Read, London.

Best bookbinding, (blank book) assortment of, W. C. Chewett & Co., Toronto $5
Best bookbinding, (letter-press) assortment of, R. Haigh, Hamilton 5
2nd do W. C. Chewett & Co., Toronto 3
Best letter-press printing, plain, Globe Printing Company, Toronto 5
2nd do Robertson & Cook, Toronto 3
Best letter-press printing, ornamental, Globe Printing Company, Toronto 5
2nd do Robertson & Cook, Toronto 3
Best letter-press printing—posters, plain and ornamental, Globe Printing Company, Toronto 5
Best papers—printing, writing, and wrapping, one ream of each, Buntin, Gillies & Co., Hamilton 6
Best papers—blotting and coloured, one ream of each, Buntin, Gillies & Co., Hamilton 6
Best penmanship, business hand, without flourishes, Odell & Trout, Toronto 4
Best penmanship, ornamental, (not pen and ink pictures) Odell & Trout, Toronto 4
2nd do A. E. Willis, Woodstock 2

EXTRA ENTRIES.

Rice Brothers, Montreal, paper collars ..... Diploma.
Buntin, Gillies & Co., Hamilton, envelopes 3
do do do paper bags 2
Wm. Irving, Kingston, illuminated window shade 3

CLASS L.—SADDLE, ENGINE HOSE, TRUNK-MAKERS' WORK, LEATHER, ETC.—76 ENTRIES.

JUDGES.—Duncan McKay, Brantford; Wm. Morrow, Cobourg; Wm. Harrie, Galt.

Best engine hose and joints, 2½ inch diameter, 50 feet, copper riveted, J. C. McLaren, Montreal $8
2nd do C. Hagar, Montreal 5
Best set double carriage harness, Ernest Kraft, Hamilton, Dip. & 5
2nd do Phillips & Robertson, Hamilton 5
Best set of single carriage harness, Phillips & Robertson, Hamilton 7
2nd do Ernest Kraft, Hamilton 4
Best set of team harness, Phillips & Robertson, Hamilton .. 8
Best lady's full quilted saddle, E. Bach, Toronto...Diploma and 8
2nd do E. Kraft, Hamilton 5
Best lady's quilted safe saddle, E. Bach, Toronto 6
2nd do E. Kraft, Hamilton 4
Best gentleman's full quilted saddle, E. Bach, Toronto 7
Best gentleman's plain shafted saddle, E. Kraft, Hamilton .. 6
2nd do E. Bach, Toronto 4
Best assortment of trunks, E. Kraft, Hamilton 8
Best assortment of thongs, J. McMichael, Hamilton 3

SADDLE AND HARNESS STOCK.

Best one piece of check for horse collars, D. Clark, Puslinch 6
2nd do J. Moore, Etobicoke 4
Best 80 lbs. of bair leather, Bowman & Zinkin, Woolwich.. 4
2nd do J. C. McLaren, Montreal 3
Best one side of brown strap and bridle leather, T. C. McLaren, Montreal 4
2nd do W. Lingwood, Nichol 3
Best 3 dressed deer skins, H. Ferdinand, Waterloo 3
2nd do Hall & Childs, Brockville 2
Best 2 sides of harness leather, W. H. Lingwood, Nichol.... 4
2nd do J. C. McLaren, Montreal 3
Best assortment of carriage or gig hames, J. Simons & Sons, Westminster 5
Best assortment of team or cart hames, J. Simons & Sons, Westminster 5
Best two pairs of horse blankets, D. Clark, Puslinch 5
2nd do J. H. Rutherford, Dumfries 3
Best 1 piece kersey, for horse clothing, D. Clark, Puslinch.. 5
2nd do J. Moore, Etobicoke 3
Best 2 sides skirtings for saddles, J. C. McLaren, Montreal, 4
2nd do W. H. Lingwood, Nichol 3

EXTRA ENTRIES.

D. Clark, Puslinch, one horse blanket ..... Commended
E. Kraft, reversable saddle, for boys and girls ..... Diploma
E. Bach, Toronto, race saddle 2
C. Hagar & Co., Montreal, engine hose and leather belting, 4
T. C. McLaren, Montreal, painted skirting in imitation of hog skin and lace leather 3
Bowman & Zinkin, St. Jacobs, card leather 3
Thomas Hunter, Barton, cressing, cleeking and raising machines 3
E. L. Bruneau, Hamilton, improved collar block 5
J. C. McLaren, Montreal, oak tanned belting leather 5
E. Kraft, Hamilton, Spanish full quilted gentleman's saddle ..... Commended
do do interfering boots ..... Commended
E. Bach, Toronto, double cab lamps ..... Commended
C. Hagar & Co., Montreal, hose belting, oak-tanned ..... Commended
do do belt leather, oak-tanned ..... Commended

CLASS LI.—BOOT AND SHOEMAKERS' WORK—LEATHER, &C.—(67 ENTRIES.)

JUDGES.—John Stirling, Toronto; Robert Gow, Berlin; Wm. Bigg, London.

BOOTS, &C.

Best boots, ladies', an assortment, A. Sutherland, Kingston $7
2nd do J. T. Bell, Montreal 4
Best boots, gentlemen's sewed, an assortment, A. Sutherland, Kingston 7
Best boots, machine-made, an assortment, J. & T. Bell, Montreal ..... Diploma and 7
Best boots, pegged, an assortment, A. Sutherland, Kingston 5

... calf ... Bowman & Zinkin, Woolwich, 3
2nd do ... Bowman & Zinkin, Woolwich 2
Best cordovan, ... Zinkin, Woolwich ... 3
Best dog skins, ... Bowman & Zinkin, Woolwich 2
Best kip skins, ... & Zinkin, Woolwich ... 3
Best kip skins, ... Bowman & Zinkin, Woolwich 3
Best assortment of ... not otherwise described, W. H. Lingwood, Nichol 3
2nd do Hall & ... Brockville 2
Best linings, six skins, H. Ferdinand, Waterloo 3
2nd do Jno. Hemer, Guelph 2
Best sheep skins, six coloured, J. W. Barry & Son, Bradford 3
Best sole leather, two sides, Macklem & Kirkpatrick, Chippewa 3
2nd do G. L. Beardmore, Toronto 2
Best upper leather, grained, two sides, Bowman & Zinkin, Woolwich 3
2nd do W. H. Lingwood, Nichol 2

EXTRA ENTRIES.

J. W. Barry & Son, Bradford, assortment trunkmakers, bookbinders, druggists and glovers' skins ..... Diploma.
H. Ferdinand, Waterloo, three oil dressed calf skins.. Highly commended
W. H. Lingwood, Nichol, buffed cow and splits ..... Commended
T. Manning, Strathroy, boot and shoe tip ..... Commended
Bowman & Zinkin, Woolwich, pebbled cow hide 2
Do do buff do 2
Do do satin calfskin ..... Diploma
F. Belgrnai, Hamilton, carpet, cloth, and velvet slippers... 3

CLASS LII.—WOOLLEN, FLAX, AND COTTON GOODS, FURS, AND WEARING APPAREL.—(133 ENTRIES.)

JUDGES—Wm. McMaster, Newmarket; Jno. Rankin, Dundas.

Best one dozen cotton bags, Young, Law & Co., Hamilton.. $4
Best one pair woollen blankets, Empire Woollen Mills, Columbus 6
2nd do R. Ellis, Ancaster 4
D. Clark, Puslinch ..... Highly commended
Best one piece unbleached calico, Young, Law & Co., Hamilton 6
Best one piece woollen carpet, J. W. Vandusen, Grimsby, Highly commended.
Best one piece rag carpet, D. Davis, St. Catharines 5
2nd do Samuel Harvey, Hamilton 3
Best piece fulled cloth, 2nd do, J. W. Vandusen, Grimsby, 4
Best two counterpanes, J. McGregor, Nelson 5
Best assortment of cordage and twines from Canadian flax or hemp, E. Law, Kingston 10
Best drawers, factory-made, woollen, six pairs, Armstrong, McCrae & Co., Guelph 5
Best flannel, factory-made, one piece, R. Ellis, Ancaster.. 5
2nd do Bath Bros. Sheard & Co., Ramsay 3
Best flannel, not factory-made, one piece, J. D. Vandusen, Grimsby 5
2nd do J. McCormick, Ancaster 3
3rd do Wm. Thompson, Beverly ....Highly commended.
Best flannel, scarlet, one piece, R. Ellis, Ancaster 5
2nd do Charles Bradley, Haldimand 3
Best fur sleigh robes, not less than three kinds, H. Ferdinand, Waterloo 8
Best gloves and mits of any leather, an assortment, Hall & Childs, Brockville ..... Diploma and 5
2nd do H. Ferdinand, Waterloo 3
Best Shawls, home-made, Mrs. P. Hiamen, Haldimand 4
2nd do Mrs. J. R. Hess, Barton 2
3rd do H. M. Switzer, Palermo ..... Commended.
Sheepskin mats, dressed and colored, an assortment, J. Clench, Hamilton 6
2nd do J. W. Barry & Son, Bradford 4
Best shirts, factory-made, three of each, woollen and Angola, Armstrong, McCrae & Co., Guelph 5
Best stockings and socks, factory-made, woollen, three pairs each, Armstrong, McCrae & Co., Guelph 4
Best suit of clothes of Canadian cloth, F. G. Furnivall, Hamilton 5
2nd do Lawson Bros., Hamilton 3
Best Wincey, checked, one piece, J. McCormick, Ancaster.. 3
Best Woollen shawls, stockings, drawers, shirts and mits, an assortment, D. Clark, Puslich 10
Best yarn, white and dyed, one pound of each, Armstrong, McCrae & Co., Guelph 3
2nd do J. W. Vandusen, Grimsby 2
2nd do D. Shaver, Ancaster ..... Highly commended
Best yarn, fleecy woollen, for knitting, one pound, Armstrong, McCrae & Co., Guelph 3
2nd do J. Richardson, Pelham 2
Best yarn, cotton, two lbs., Young, Law & Co., Hamilton.. 3
Best yarn, linen, two lbs., E. Law, Kingston 2

EXTRA ENTRIES.

E. Law, Kingston, tarred cordage ..... Highly commended.
T. Thomson, Williamsburg, Scotch plaid ..... Highly commended.
Mrs. J. Grant, Puslinch, home-made woollen plaid ..... Highly commended.
P. Wilson Eramuss, home-made wincey 3
C. Foster, East Flamboro', woollen plaid 2
Lawson Bros., Hamilton, suit of silk mixture, imported goods 2
D. Davis, St. Catharines, balmoral skirting, wincey ...Commended.
R. Ellis, Ancaster, fancy flannel ..... Commended.
Geo. Copeland, Hamilton, Russian hemp rope and cordage. 3
do do do Manilla hemp rope 2
do do do Russian jute hemp rope 2
Armstrong & McCrae, Guelph, lacrosse shirts and stockings. Com.
J. Simpson, Toronto, silk quilt 1
J. Otway, Toronto, six mats ..... Commended.
J. Cook, Toronto, 2 sleigh robes 4
Do. 1 sheep skin 2
J. Richardson, Pelham, wincey plaids ..... Highly commended.
R. Hill, Hamilton, one counterpane 3
James Adams, Toronto, set of military flags, embroidered in silk 4
Ontario Cotton Warp Mills, Thorold, cotton yarn dressed on the beam 3
Ontario Cotton Warp Mills, cotton batting 1

The Field.

A Good Crop of Turnips.

To the Editor of THE CANADA FARMER:

SIR,—I send you some statements in the CANADA FARMER of very large yields of turnips. I think it not amiss to send you the weight of seven greystone turnips pulled to-day, from a field on the farm of Mr. A. A. Brodie, Gladstone.

No. 1, 20 lbs.; 2, 15½ lbs.; 3, 16½ lbs.; 4, 14½ lbs.; 5, 14½ lbs.; 6, 14½ lbs.; 7, 12½ lbs.—108½ lbs.—nearly averaging sixteen pounds apiece. A pound of seed was sown, and the crop is equal, although these seven roots were to appearance the largest met with in pulling.

Whether these would be considered large or not, by those acquainted with the growth of greystones, I do not know—perhaps some of the readers of the CANADA FARMER can tell. The ground was in corn last year, was manured previous to planting the corn, but received no manure for the turnips. In the same field there are two acres of excellent yellow Aberdeens—the rest of the field being Skirving's improved purple-top Swede—all unusually large and well-formed bulbs.

GLADSTONE, Nov. 7, 1868.

Pasturing New Seeded Fields.

THERE are some cases where it will do to pasture new seeding. With a good growing season, when the clover and grass is up so that some is cut by the reaper, and there is a vigorous growth after harvest, there is no harm in pasturing moderately. Then considerable feed may be had without injuring subsequent crops. Indeed I have seen new seeded clover injured by getting too forward the first Fall. The crop was never so good afterwards. If the clover had been fed off, there is little doubt that the crop would have been heavy the next season. But such cases are rarely seen. It is only when clover very generally comes into blossom that it may be injured in this way. Vastly more is injured by feeding down too close.

In dry seasons, when land is none too well seeded, and the young clover and grass have made but a small growth at best, it is a losing practice to pasture new seeding. The young plants need all of their life and vigor to stand the heat and drouth, and to make a sufficient growth; while they need all the growth and strength of root that can be secured to stand the Winter and Spring, and make a good crop next season. The root will be in proportion to the top. When fed off, there is much less growth of root—the efforts of the plant being directed to secure a proper proportion of leaves, on which the general growth of the whole plant so largely depends. If these leaves are closely fed off during the Fall, little gain in size and strength is secured. Then the root has but little hold on the soil, and in freezing and thawing weather is easily thrown out.

There is a good deal lost in this way. The small growth affords but little pasture at the best, while succeeding crops are often seriously injured. Many dollars are thus lost for every dollar's worth of feed obtained. Few are aware or stop to consider how much is lost in this way. With a good seeding, and fine growth after harvest, considerable pasture is secured without any apparent injury to succeeding crops. So they expect to feed off all stubbles, and the next season, if the crop is light, it is attributed to some other cause, or there is much wonder and surprise that it is no better. Frequent cases of this kind have come under my observation, and repeated trials have shown that a small growth, when not fed off the first Fall, will give a much better crop the next year. —*Cor. Country Gentleman.*

☞ Muck, says an exchange, should never be taken to the field direct from the swamps. It should be exposed to the atmosphere for six months or more, the longer the better, and composted with lime or unleached ashes.

☞ A correspondent of the *Journal of Agriculture* says he finds his clay-loam grounds increase more in productiveness by the use of eight bushels of salt to one bushel of plaster per acre, than from the application of barn-yard manure.

How to Foretell the Weather.

To the Editor of THE CANADA FARMER:

SIR, the following mode of foretelling the weather, which I have taken from an English paper, is worthy of consideration and observation here, though, of course, the same rule may not hold good on this side of the Atlantic. The other day I could not help overhearing in a railway carriage an amusing instance of judging the weather by experience. A gentleman, who was on his way to attend the annual dinner of the Canadian Loyalists, at Grimsby, said to his companion, in reply to some observation on the weather, that he was sure it would not rain that day, it never did on the 13th of October. On being asked the grounds of his opinion, he replied that he had attended the Grimsby dinner for twenty-one years, and he had never known it to rain on that day, and therefore he did not believe it would. This year his faith must have been shaken, as rain it did, in spite of the dinner, steadily, quietly, the whole afternoon.

The account I referred to is as follows:—"The late Marshal Bugeaud, when only a captain, during the Spanish campaign under Napoleon I., once read in a manuscript which by chance fell into his hands, that from observations made in England and Florence, during a period of fifty years, the following law respecting the weather had been proved to hold true:—'Eleven times out of twelve the weather remains the same during the whole moon as it is on the fifth day, if it continues unchanged over the sixth day; and nine times out of twelve like the fourth day, if the sixth resembles the fourth.' From 1815 to 1830 M. Bugeaud devoted his attention to agriculture, and, guided by the law first mentioned, avoided the losses in hay-time and vintage which many of his neighbours experienced. When Governor of Algiers, he never entered on a campaign till after the sixth day of the moon. His neighbours at Excideuil, and his lieutenants at Algeria, would often exclaim, 'How lucky he is in the weather!' What they regarded as mere chance was the result of observation. In counting the fourth and sixth days he was particular in beginning from the exact time of the new moon, and added three-quarters of an hour for each day for the greater length of the lunar as compared with the solar days.

This may possibly interest some of your readers. I have not yet had time to test the rule myself.

LUNA.

STANDARD WEIGHT OF THE BUSHEL—CORRECTION.—We regret to find that by a typographical error the standard weight of the bushel of corn was set down in our issue of October 15th at 58 lbs. It should be 56 lbs.

TUMOURS.—A subscriber from Ancaster writes: "Some of my cattle, and others belonging to my neighbours, are troubled with tumours growing on their neck and cheek, varying in size from a hen's egg to a cocoa nut. Sometimes they discharge and heal up, while others grow up afresh, and thus continue for months. If you can tell the cause, and the treatment they ought to receive, you will much oblige."

ANS.—Small tumours in the region of the head and neck are frequently successfully treated by the application of iodine ointment, in the proportion of one part of iodine to six parts of lard. When these tumours appear to contain matter, they should be opened freely, and dressed with diluted carbolic acid. Our correspondent mentions having sent a previous communication on the same subject, but the above is the only one that has reached us.

MUSKOKA.—"F. ..." "I understand ... ka district, and that being the case, is it possible to make a good wheat and grain-raising country of it, without spending more on super-phosphates than could be realized from the crops? Also, what crops would do best on such a soil?"

ANS.—There are many parts of the older settled portions of the Province that are destitute of limestone, and yet have proved themselves excellent wheat-growing districts. Much of the land in Muskoka seen by tourists, in the immediate neighbourhood of the lakes, is rocky and barren, but there are tracts of excellent soil, well calculated to produce any of the ordinary crops of the country. We have seen good samples of all the common cereals, field roots and garden vegetables, including melons, that were grown in Muskoka.

COAL TAR A SUBSTITUTE FOR PAINT.—William McDougall, of Baltimore, writes:—"In the January number of *Chambers' Journal*, the article on science and arts recommends coal tar instead of oil paint as a preventive of iron from rust. Could you inform me how the tar is prepared, or is it applied as it is, raw? I want it for painting sheet iron for roofing a large steam saw mill."

ANS. Coal tar is extensively used in coating iron articles of hardware, and is applied by heating the coal tar over a stove, which gives it a thinner consistence, and using a stiff brush to lay it on. Or the article to be coated is sometimes heated and dipped into the coal tar. Naptha is occasionally mixed with the tar to reduce it, make it dry more quickly, and give a degree of polish to the surface.

TO CORRESPONDENTS.—The insertion of the Prize List has so curtailed our space for other matter, that we are compelled to defer several communications, which shall, however, receive our earliest attention.

The Canada Farmer.

TORONTO, CANADA, NOVEMBER 16, 1868.

NEW SERIES

OF

The Canada Farmer.

TWO MORE issues will complete the FIFTH VOLUME of this journal; and we are justified by the unanimous voice of those best able to judge in our own Province, and by the constant laudations of our cotemporaries in Great Britain and the United States, in claiming that the task we undertook five years ago has been spiritedly and successfully accomplished. We but echo the general voice, when we claim that for the care and skill with which its reading matter has been written and selected, for the suitability of its fortnightly contents to advance the agricultural knowledge and system of the Province, for the beauty and profuseness of its original illustrations, and for the creditable style in which the Typography of the work has been executed, the farmers of this Dominion have had in THE CANADA FARMER a journal devoted to their interests unsurpassed by any other country.

The publication of THE CANADA FARMER was not undertaken in the expectation that a great profit would accrue from it to the proprietors. It was commenced with the view of ... ratum in a country so ... on its farming interests, and to ... excellence of Agriculture throughout the Province. But the confident belief ... tained, that a really efficient Journal would rally around it the cordial, and united, and generous support of the whole farming community. Our part of the work has been performed in a style of which we feel we are entitled to be proud. But that ample support which we expected to receive at the hands of the farmers has not been accorded. It is true that the circulation of THE CANADA FARMER has always been vastly larger than any other agricultural publication ever received in Canada; but the labour, and expense, and enterprize devoted to it have been far in advance of any other similar publication. We have spared no expense in keeping up the character of the journal—we have kept down the number of advertisements, so that the reading matter might not be lessened—and to aid the operations of the Township and County Societies, we furnished the paper to them at a rate which ought to have placed on our subscription-list the name of every man in Upper Canada pretending to be a farmer. But the lamentable facts are before us, that not one farmer in ten has subscribed for the paper,—and that no profit has accrued from its publication. The slightest effort put forth by the prominent farmers of each Township would have secured a circulation vastly in advance of what it has been, would have given us some compensation for our labour, and enabled us to increase from year to year the size and attractions of the journal.

Notwithstanding all this, the publication of THE CANADA FARMER might have gone on without change, for years to come—as a labour of love—but for the Postal Bill of last session. This measure has, however, totally changed the position of matters. Heretofore, all agricultural newspapers have passed through the Post Office *free of postage;* but, from and after the first day of January next, a postage rate of one cent per copy is to be imposed upon them; and this not payable by the reader of the paper, but payable by the publisher in advance. The effect of this most arbitrary and absurd regulation—and which, so far as we know, strikes only at THE CANADA FARMER and one other publication—is to compel us to pay the Post Office authorities, in advance, no less a sum than $1,680 *per annum*. This we cannot do, and continue to issue such a sheet as we have done, at the very low rates we have heretofore submitted to.

Under these circumstances, we have resolved to commence on the 1st of January, 1869, a new series of THE CANADA FARMER. We propose to issue it monthly instead of semi-monthly; but each copy to contain as much matter as two copies now do. We propose to increase, if possible, the interest and usefulness of the paper, and to add fresh attractions to its columns. But we propose, at the same time, that the price hereafter shall be uniformly ONE DOLLAR PER ANNUM, without abatement, leaving us, after payment of postage, 88c. net;—and we make our appeal to the Farmers of Canada, to sustain with a little more energy a paper in their own interest, and one that has done them no discredit, either at home or abroad.

Land Questions in the Ontario Legislature.

The Legislature of Ontario assembled for dispatch of business on the 3d inst., and we are glad to perceive, both from the Governor's Speech and the remarks of members on both sides of the House, during the debate in reference to the address in reply, that there is a disposition to give early attention to those important land questions, the adjustment of which is so imperatively demanded by the best interests of the country. It is very generally conceded that the legislation on these questions during the first session of our Provincial parliament was far from satisfactory. Men of all parties join in condemning it as narrow, illiberal, unsuited to our wants, behind the age, and but ill calculated to attract what most of all we want, an industrious, energetic, thrifty agricultural population. If the legislation of last session was unsatisfactory, the procedure of the Crown Land Department during the recess has been still more so. A summary notice was issued in June last requiring immediate payment of arrears by settlers on lands purchased from the Government. Believing themselves threatened with the loss of their farms, not a few hastily sold them for what they would fetch, and others borrowed money at high interest to keep them out of the clutches of the Commissioner, while the rest, in painful suspense, awaited their fate. The time for payment was extended until October, at the earnest representation of influential people resident in the sections affected by the demand for arrears, and has been further extended until March. The feeling is very generally entertained by intelligent men of all shades of politics, that the greatest leniency should be shown toward settlers in arrears, and anything like indiscriminate coercion, or forfeiture of land, should not be thought of for a moment. Indeed, no man, unless possessed by the spirit of a Shylock, would think of exaction on pain of confiscation, and we are persuaded the Crown Land Commissioner never seriously entertained the idea of doing what he threatened. It was, therefore, very unfortunate, to say the least of it, that the settlers should have been thrown into panic, and put to trouble and loss. From what has transpired in the Legislature, we hope assurance will soon be conveyed to the parties concerned that they will not be disturbed or put to further unnecessary annoyance about their land arrearages. Except in the case of men of intemperate and otherwise loose character, the anxiety of a settler to get his land free from encumbrance will be a constant stimulus to effort in the direction of paying up. It is the great ambition of this class of people to own their farms, and they may, generally speaking, be relied upon to constitute themselves proprietors at the earliest possible date. When the toils of clearing land and getting in the first crops are considered, and account is taken of the many difficulties and hardships encountered by settlers in new townships; when further it is remembered that they are adding largely to the wealth of the country by their labours, assuredly every indulgence ought to be extended to them at all consistent with the public interest. Being a rich Province, with a million of money at our credit, we do not need to push honest and well-intending debtors.

The free land system is to be improved. This is well, for it greatly needs improvement. A larger grant is contemplated, and on less restrictive conditions. As yet we have not come up to the liberality of the United States Government in this particular, and if we wish to arrest and detain a portion of that tide of emigration which sets so strongly toward the far west, we must offer at least as tempting inducements as are held out by our neighbours across the lines to those who are seeking homes in the new world. We see no cause for hesitation in this matter. The faster we can fill up our waste places with an industrious population, the better will it be for every material interest of our country. Every settler becomes at once a producer and a consumer. He is profitable to us in both characters, and we can afford to pay a premium on population, for that is our great want.

We trust that the present session will not close without the enactment of a Homestead Law. Much was said on this point last session, and but little done in regard to it. It is to be hoped this order will be reversed during the present session, and that however little may be said, something substantial will be done. In this respect, again, we compete disadvantageously with Brother Jonathan. Beside this argument based on expediency, there is ample ground for urging a Homestead Law on high and righteous principles. We are by no means in favor of supplying dishonest people with an easy mode of evading their just debts. There is no lack of these things already, and with or without such a law, rogues will always find ways of cheating those who are unfortunate enough to put confidence in them. But a well-framed and wisely guarded Homestead Law is not a premium on dishonesty, but an incentive to industry and energy. The payment of one's debts must always be more a matter of innate honesty than of security and compulsion, and if a Homestead Law induced as one practical effect a wider prevalence of the ready money system of doing business, it would be of incalculable benefit to the country. We have heretofore urged at length the arguments in favour of the law in question, and need do no more at this time than call attention to the matter as one that imperatively demands immediate action on the part of our Legislature.

We trust the Minister of Agriculture will be prepared to submit some measures of importance in connection with his department. Now that we have so large a balance to the public credit is a good time to moot the subject of a model farm and school of agriculture. Not a few of the States of the American Union have richly-endowed institutions of this kind, and we ought not to lag behind in a thing of such manifest importance. Our Provincial exhibitions furnish proof that we are in many respects ahead of our neighbours in the United States. Let us determine that we will equal, and, if possible, excel them in provision for agricultural education.

Book Notices.

"The Carolina Farmer."—We have received "the initial number," as it is fashionable now to call it, of a new monthly magazine, with the above title, and "devoted to the agricultural interests of the two Carolinas." It is neatly printed, and contains a miscellany of useful articles, chiefly selected from other journals of its class. In a short "monthly talk with our farmers," we find warm quarters for stock insisted on as essential to success with animals, and the "antediluvian habit" of exposing them to wintry winds and storms deservedly reprobated. How much more this applies to such a climate as that of Canada! In a paragraph on exchanges, the editor proposes to send *two copies* of his journal to sundry papers not mentioned, and requests them to reciprocate the favour. "One copy," he says, "we wish to clip from, and the other we wish to keep for binding." A good idea. There are no "Southern politics" in this journal, and we cordially welcome it to our exchange list, wishing it all success.

"The Little Corporal."—We have more than once noticed this beautiful juvenile monthly, and now, on the occasion of its appearance in a new dress, we take the opportunity of again commending it to public attention and patronage. The November number is at once protected and bedecked with an attractive-looking cover, which is a great improvement. "*The Little Corporal*" is true to its motto, "fighting against wrong, and for the good, the true, and the beautiful." Its articles are exceedingly well written, and it often contains rare gems of poetry and choice pieces of music. It is published by Alfred L. Sewell, of Chicago, at one dollar per annum, and subscribers ordering now will receive the November and December numbers for the present year in addition to next year's volume.

Hemp and Flax.—A treatise on the culture of these plants has been recently published by Mr. A. Kirkwood, of the Crown Land Department. It contains a vast amount of important information, gathered chiefly from works recently published on the subject in England, and judiciously applied to the circumstances and requirements of Canada. The harvesting of the crops, the manipulation of the fibre, and its application for manufacturing purposes are fully explained. The treatise will be found a valuable work for all who are interested in this important branch of industry.

Agricultural Engineering.—We are glad to learn that a firm have recently arrived from Scotland whose services in one branch of their profession will be particularly useful to agriculturists in this country. Messrs. McDongall and Shaw, Engineers, Surveyors, and Architects, have commenced business in Toronto, and propose to give special attention to the drainage of farm lands, waste lands and towns; and to the improvement of water courses, irrigation of lands and the introduction of water into towns and buildings. They also propose to make a specialty of preparing plans and estimates for the laying out of ornamental and farming properties, for draining fields by tiles and other means, for the erection of farm-steadings and other buildings. We know of few things more needed in Ontario than to have the advice of a professional man of skill and taste, and moderate ideas as to expenditure in such matters. How many beautiful places over our country have been spoiled in appearance by the lack of such advice! How many meditated improvements have been cast aside by a groundless dread of the cost, which one consultation with an experienced professional man might have removed. When work is being done it is sound economy to do it in the most convenient and tasteful way that circumstances and means on hand will permit, and the advice of a skilled professional man is but a small addition to the cost. We hail the introduction of this branch of professional skill amongst us as at once an indication and promise of agricultural progress.

Agricultural Intelligence.

Board of Agriculture.

A meeting of the Board of Agriculture took place in the rooms of the Association on Thursday, Nov. 5th. The President of the Board, the Hon. David Christie, occupied the chair.

A number of communications were read, some of which referred to matters of the past, on which no action could be taken.

The Treasurer's statement submitted showed the total receipts for 1867 to be $82,140 98, including the balance of the previous year. The total amount expended was $75,986 18. A continuation of the report, in conformity with instructions from the Bureau of Agriculture, was read, showing the amount received and expended since last audit.

The communications between the Board of Agriculture and the department at Ottawa, in reference to the cattle disease, were submitted.

A circular, dated Albany, 13th October, was also read, asking a general convention of all interested in the raising of cattle to inaugurate an efficient system of legislation to prevent this and similar diseases. The circular recommended that a convention, with this object, be held at Springfield, Illinois, on Tuesday, the 1st of December—each State to be represented by three commissioners.

At the annual meeting held at Hamilton, Hon. D. Christie, Messrs. Asa Burnham and F. W. Stone were appointed a deputation, and at this meeting it was resolved that the appointments be at once communicated to the Minister of Agriculture for the Dominion, and that he be requested to obtain from the Government compensation to meet the expenses of the deputation.

A number of protests were considered and adjudicated on.

The Secretary reported that he had requested the General Government to pass the prize lists for the exhibition free of postage, but they declined doing so. The prize lists always went free of postage until this year.

A committee was appointed to consider a number of accounts for repairs of buildings at Hamilton.

A letter was read from Mr. Adam Crooks, Vice Chancellor of the University, notifying the Board that the University required possession of so much of the grounds as have been occupied by the Board or its tenant, Mr. Shanly, and that the occupation shall definitely cease on the 30th April, 1869. A committee was appointed to arrange with the University authorities in reference to the matter.

An application was made by Mr. A. Smith, veterinary surgeon, for a grant towards providing a proper dissecting room in connection with the Veterinary College.

The Board granted $150 for the session, provided he furnish the buildings at his own cost.

The Board ordered twenty-five copies of a pamphlet, by Mr. A. Kirkwood, of the Crown Lands Department, Toronto, on Flax Culture. A letter was read from Mr. John A. Donaldson, emigration agent, reporting the state of the flax throughout the country this year. The crop this season, he states, has been quite equal, if not superior, to that of any former year. Having been sown early, the crop got a good start before the drought set in. Lately, he says, there has been quite a demand for the fibre, as well as seed, and the prices realized for both are almost equal to the highest figure realized during the time of the American war.

After the disposal of other matters, the Board adjourned.

The English Harvest of 1868.

The following letter from Mr. Caird to the London *Times* on the subject of the Harvest of Great Britain, will be read with interest on this side of the Atlantic:—

"The publication of the agricultural returns of the United Kingdom affords the basis for an estimate of the yield of the last crop, which, with your permission, I venture to submit for consideration.

The yield of wheat has been ascertained in various parts of the country, and, with the exception of that grown on shallow gravels and light sand, it is pronounced nearly equal to the fine crop of 1864, but not so good as the abundant crop of 1863. It is nearly as much above an average as the crop of 1867 was below it. My own enquiry and observation lead me to the conclusion that thirty-two bushels, or four quarters, an acre may be safely reckoned as the yield of this year, which is five bushels an acre above the yearly average yield of the United Kingdom.

So far we did not need the agricultural returns to help to this conclusion. But without them we could not have known that upwards of 300,000 acres had been added to the breadth under wheat, and that thus, beyond the bountiful yield of each acre, we have this year secured an addition of one-twelfth to the acreage, which is the same thing as an additional month's home supply. The money value of this knowledge may be difficult to estimate. If we reckon its influence on price, at but one shilling a quarter on the total consumption of the country, the cost of obtaining these returns will be repaid to the country one hundred fold.

The cost of imported wheat in the current year will be about £15,500,000. Last year it was £31,000,000. The highest average price of the year was reached in May, 73s. 11d., from which it has fallen in four months to 53s. 7d., or rather over 20s. a quarter. But this saving of £15,500,000 in the price we shall have to pay for foreign wheat will be considerably diminished by the deficiency in the barley and oat crops.

These I reckon to be at least one-fifth below an average crop, and there being likewise a deficiency in the acreage, the ordinary money value of the barley and oat crops of the United Kingdom will this year be probably £10,000,000 under an average. Of this rather over one-half applies to the oat crop, a large portion of which being consumed on the farm, the loss will fall more heavily on the farmer than on the public.

The hay and green crops are also greatly deficient. It would be very difficult to place a money estimate on this deficiency, but the loss of these, which are the basis of stock husbandry and productive corn crops, will seriously trench upon farming capital. A large import of cheap feeding stuffs will be required, for which preparations are already being made in America, where in the valley of the Mississippi the growing crop of Indian corn is said to be unprecedented in abundance. A system of transport has been arranged by the Illinois Central Railroad for the shipment from Cairo to New Orleans of 10,000 quarters daily, in the expectation of orders from Europe at New Orleans to take off this supply.

The potato crop remains to be considered. There is an increase upon it of 80,000 acres—somewhat more than one-twentieth of the whole extent. It will prove an average crop; the second growth, which began after the rains in July and August, having added greatly to the bulk.

On the whole, the harvest of 1868 will prove a productive one of wheat and potatoes—the main food of the bulk of the population, which will thus be supplied at a moderate price. But there will be a great deficiency in the food of live stock, and a very serious loss in that branch of agricultural industry.

JAMES CAIRD."

October 5.

Sale of Mr. Snell's Stock.

To the Editor of The Canada Farmer:

Sir,—I send you a list of the prices obtained for the stock sold at my sale on the 28th, with the names of purchasers in the cattle department. The attendance was not large, but was highly respectable; nearly every man was a "brick." The prices, of course, are not large, but the stock was not in good condition for selling, in consequence of the severe drought of the past summer. Considering that it was the surplus stock of the farm, I think it was on the whole satisfactory. Some of the sheep went to Grand Rapids, Michigan, and to Riviere du Loup, Quebec. The following are the prices the Short Horns brought:

COWS AND HEIFERS.

NAME.	AGE.	OWNER.	
Alma	9 years	R. Craig, Burnhamthorpe	$115
Beatie Bell	10 years	Geo. Anderson, Stanley	150
Bracelet	2 years	Col. Taylor, London	150
Modesty	1 year	Col. Taylor, London	159
Forget-me-not	1 year	T. Porter, Vaughan	98
Helen	4 years	P. O. Martin, Cayuga	101
Fancy	13 years	Col. Taylor, London	145
Peace	4 years	R. Kenny, Ottawa	71
Cora 2nd	12 years	Geo. McGillivray, Whitby	73
Elsie	7 months	P. O. Martin, Cayuga	60
Cantilene	6 months	R. Kenny, Ottawa	72
Wedova	5 months	R. Kenny, "	72
Modora 4th	3 years	Hon. D. Christie, Paris	81

BULLS.

NAME.	AGE.	OWNER.	
Noble Duke	12 months	W. Tindale, Peel	$90
Dixie Duke	6 months	H. Snell, Clinton	147
Lyndon Duke	5 months	T. R. Smith, Waterloo	101
Cameronian	5 months	E. Crawford, Peel Co.	100

Leicester Ewes brought from $12 to $36 a pair; Ewe Lambs, from $14 to $32 a pair. Cotswold Ewes, from $24 to $52 a pair; Ewe Lambs, from $26 to $47 a pair; Rams, from $20 to $60 each. South Down Ewes, $10 a pair; Rams, from $8 to $24 each.

The sale realized $3,264.

JOHN SNELL.

Edmonton, Oct. 30th, 1863.

Immigration Conference.

A conference was held at Ottawa on the 30th Oct., between members of the Dominion and Provincial Governments, on the subject of immigration. A plan of concerted action was agreed on, the details of which are to be prepared in Ottawa and submitted to the Local Governments for their approval. New energy is to be given to the action on the part of the Dominion, by establishing agencies in London and on the Continent—while agencies at all important points in the Dominion are to be maintained. The local Cabinets may supplement the action of the Dominion by sending additional agents to Europe to act in concert with the agents of the Dominion. The immigration policy of each Province must be communicated to the Dominion Cabinet, who will facilitate its diffusion. What is mainly promised from the new system is, that increased energy is to be given to Dominion action, while the Provinces will be left open to do what they please in addition.

A New Branch of Industry.

It affords us much pleasure to know that a new branch of industry has been established in Stratford in connection with the manufacture of flax. Hitherto the article has been prepared for the United States market only to the extent of being scutched. The duties on the other side, however, are levied in such a way as to make it very profitable to carry the process of preparing flax in this country a step further, and heckle it. On scutched flax the duty is $15 per ton. It is also the same on heckled flax. But on the tow which is derived from heckling, the duty is $5 only per ton, making the average duty on the heckled flax and its product tow, $10 per ton instead of $15, the duty on flax simply scutched. With these facts in view, Messrs. Hart & Co., a firm largely engaged in the flax business in New York, lately sent an agent to Canada to arrange for heckling flax in this country. We understand that on his arrival he saw Mr. Donaldson, of Toronto, and concluded to establish his works at Baden. But, coming to Stratford to purchase the scutched flax, Messrs. Marshall induced him to abandon the idea of going to Baden, and to do his heckling here. Messrs. Marshall engaged to give him sufficient accommodation immediately at their mill in Stratford, and enough flax to keep his men at work until he has had time to visit other mills and make larger purchases. The agent is prepared to purchase all the scutched flax he can obtain in Canada, and will pay for it the highest New York prices. He hopes to be able to obtain sufficient to give constant employment to twenty-five or thirty men. He has his heckles already here, and is busily occupied with the necessary arrangements to set the men at once to work. We attach considerable importance to this movement. Not only will it tend to benefit the Town of Stratford in a direct manner, but it will stimulate a growing agricultural industry throughout the country.—*Stratford Beacon.*

☞ The *Practical Farmer* gives a report of the potato crop this year, in the vicinity of Philadelphia. The Early Goodrich did not sustain its former reputation, although this is believed to have been largely owing to the season. It did not do as well on light as on heavy soil. The Michigan White Sprout did well, as did the Jersey Monitors. The Harrison did finely, and seems to be the best late potato. The Pink-eye Rusty Coats did exceedingly well. The Early Rose is almost unanimously endorsed.

Esparto Grass.—A large quantity of this vegetable for Messrs. John Taylor & Bro., and intended to be used by them for the manufacture of paper, arrived in this city by different vessels during the past few days. Esparto grass is quite plentiful in Lower Canada, but has never been of much commercial importance until its advantages as a substitute for rags were discovered.

The Gamgee Meat Preserving Process.—Professor Gamgee has been spending the summer at the West, preparing to put up beef, mutton and other meats for Eastern and European markets. He recently returned with a fine lot of beef, mutton, prairie chickens, etc., which was exhibited for a week or more before being packed and sent to England. The beef was in quarters, the mutton in carcasses. We partook of some of the steaks and found them most delicious, and are confirmed in our good opinion heretofore expressed, and in our best wishes for the success of the process, in the hands of the Gamgee Meat Preserving Company.—*American Agriculturist.*

The Wheat Crop of California.—One hundred and fourteen cargoes of wheat were shipped from San Francisco to England since July 1st last year, footing up three million centals, or five millions of bushels, valued at $6,500,000. The progress of agricultural development and enterprise in California is unprecedented in the world's history. It is but a few years since California had to be supplied with wheat and flour from Chili and the United States; now the wheat crop of California last year did much to save England from famine, and the United States from famine prices. The climate of California is very favorable, not only to the growth but to the harvesting of the wheat crop, as the plant matures when the season is so dry that neither rust nor after sprouting can take place, and the wheat may be threshed in the field and left in bags for weeks without shelter. The question now is, how long will the wheat-growing pabulum last in the soil by cropping without manuring? Much longer, perhaps, in that volcanic soil, where the inorganic (mineral) elements of plant food are in great force, than it will on our alluvial prairie lands at the west, which have already begun to fail under continuous cropping with wheat.—*Cor. American Farmer.*

Stock Department.

"Bolivar," the Favorite Short-Horn of the Year in Great Britain.

It will doubtless be interesting and instructive to Canadian farmers and stock-breeders to compare our own prize animals occasionally with successful candidates for honours in the show yards of Great Britain. We have, therefore, much pleasure in presenting our readers with the accompanying portrait of "Bolivar," which the *Farmer* (Scottish) says "may be justly considered the crack short-horn bull of this season." For our illustration and the following brief account we are indebted to the same excellent journal:

Bolivar, the favourite yearling bull, was bred by Mr. Joseph Meadows, Thornville, Wexford, and his first appearance in public was made at the last Spring Show of the Royal Dublin Society, which was held this year during the second week after Easter. He was at that time just a year old, but possessed great substance for his age. On that occasion he won the first prize in the yearling bull class, in which there were no less than 108 animals of the same age entered, many of them being of a very good description. The Towneley, or *Irish Farmers' Gazette* Plate, value £105, was also awarded at that time to Bolivar, as the best of all the prize animals of any age, sex, or breed in the cattle sections exhibited at the show.

"BOLIVAR," the Property of Joseph Meadows, Thornville, Wexford, England.

His next appearance was at the Leicester Show of the Royal Agricultural Society of England, held last July. At Leicester, Bolivar sustained his early honours, having been put first in the yearling bull class, which numbered twenty-three entries, being a very superior class, and the propriety of the award was universally allowed, not a few going even the length of saying he was the best animal in the yard.

Bolivar was not exhibited at the Yorkshire meeting, but Mr. Brierly, Rhodes House, Lancashire, who had purchased him soon after the Leicester show for 300 guineas, brought him out at the show of the Keighley Society, August 21, where, amongst other first-class bulls, he had to compete against Mr. Jonathan Peel's Knight of Knowlmere, a bull which is nearly five years old, and which had been second in the aged class at Leicester, to Mr. Booth's Commander-in-Chief, beating Commander-in-Chief, however, when shown subsequently at the Wetherby meeting of the Yorkshire Society.

At the show of the Halifax and Calder Vale Society, which was held at Halifax on the 29th Sept., Bolivar was not only first in the yearling class, but carried off also the Vice President's Cup as the best male short-horn exhibited.

The last appearance of Bolivar was at the show of the Manchester and Liverpool Society, held at Southport on the 1st October. At Southport he had to contend, amongst others in the yearling class, with Mr. Lynn's Grand Sultan, a son of Prizeman (24,870); Lady Pigot's Rosolio, the second prize yearling bull at Leicester; Mr. Dickinson's Buxton, by 10th Grand Duke, from a Lord Oxford dam; and Mr. Peel's Baron Beust, by Knight of Knowlmere, from a dam by Prince Leopold—all formidable rivals. Bolivar, however, again got the first place.

Bolivar's points are a capital style of head, a long symmetrical frame, exquisite quality of flesh, and a rare coat of rich, mossy hair. During the early part of the year, and until after the Leicester show, the roan colour of his coat had a peculiar dingy appearance, but that has now given place to a new one of the richest blooming roan hue. He is chiefly of Booth and Mason blood.

Weaning Colts.

To the Editor of THE CANADA FARMER:

SIR,—As I have had some experience in weaning colts, allow me to tell your correspondent "Gosford" what I have found to be a "good way." Put the colt and its mother in a stable; tie both side by side to a manger, in a wide stall; have nothing between them; give them an adequate supply of nutritious aliment for a few days, and the thing is accomplished. I prefer this way, because it prevents *fretting*, on the part of the mare and colt both, and, as the Irishman expresses it, about two pigs in the same pen, the one *encourages* the other to eat; so that the colt is not reduced in condition, as is too often the case during the weaning process. This mode of treatment helps to *halter-break* the colt, too, if it has not previously been done.

Another plan I have sometimes adopted, when I did not want to stable the colt—that is, started the old folks away on a visiting tour for a week or so with the mare, leaving the colt in the pasture-field with other colts; thus the two are out of hearing distance of each other, until the young one forgets its baby notions. J. B. A.

Newburgh, Nov. 9th, 1868.

The above directions are in accordance with those given in the following extract from the *Rural World*:

"When a colt is about four months old, if he has had proper care and training, and if the dam is to be used in harness, or if she is breeding again, he is old enough to be weaned. Supposing, as most farmers are obliged to do, that the mare has had to work more or less since dropping her foal, and that the colt has been allowed to follow the dam when at work—the attachment between the two has become very strong. If separated entirely and at once, and if the mare is nervous and high-strung, she will, perhaps, refuse to work, act frantic, kick, and do everything else she ought not and would not do but for the separation. On the other hand, put the colt into ever so good a pasture, feed him on grain, and do everything you may, he will run up and down by the fence, perhaps try to scale it, etc., to get to the dam, until he has run off every bit of flesh on his bones. Now, what's to be done?

"We would place the mare in a stall wide enough for her and the colt; then we would halter the colt and tie him so that he could get to the manger but not reach to the teat. It may be necessary, also, to change somewhat the halter of the dam, so that she cannot turn sufficiently to allow the colt to suck. Water the colt freely, but the dam as little as possible, for a few days, at least. If possible, feed the colt a double-handful of oats twice per day for two or three weeks before you attempt the weaning. Increase the quantity of oats a little at weaning time, even if you withdraw the extra ration by-and-by. Standing by the side of his dam he will be more quiet, and, after a little, forget his teat. The mare, also, will leave him more readily in the stable while she labours, especially when she finds him on her return. To facilitate the drying up of the milk in the mare take a little soft soap and smooth it over the udder. It may be necessary to draw out some milk first for a few times, to ease her distress. After a few days, especially if the mare is again breeding, milk will not flow very readily and be diverted naturally to the embryo foal; and, although the mare may call her colt, she will refuse to let him suck. If possible, the colt should have the best of pasture, and the company of other colts of his own age, and the daily allowance of oats, or a handful or two of meal mixed with wheat bran should be given every day.

"The latter years of our life on the farm, we never allowed the colts to follow in the field, but kept them in a loose box in an underground stable during the day. When the mares came home and were watered at night, the colts were allowed a play spell, and also at noon while the dams were feeding. The colts kept in better flesh, and gave a great deal less trouble, at weaning."

"Old Jerry."

To the Editor of THE CANADA FARMER:

SIR,—I noticed an article in the last number of the CANADA FARMER, headed "The Oldest Horse." I would just say, I can probably give as correct a history of "Old Jerry" as any of your subscribers. His colour is dark brown, except one white foot and a few white hairs in the forehead. He stands fifteen feet one inch high; girth about six feet three; head small; eye full and sharp; neck well arched; shoulder and arm powerful; deep chest; short, strong, hairy legs; knees inclining, or knock-kneed; ribs well arched; hips smooth; hind-quarters rather narrow; hind legs slightly bent; mane and tail not very heavy. He was quite timid and nervous upon being approached by a stranger, was not a fast traveller, but could make a big day at either light or heavy work. He always showed plenty of ambition, and made a good appearance. His constitution was hardy. Old Jerry was brought from near Toronto by Paddy Smith (a carter) to Aurora (then Machell's Corners), to work at the macadamizing of Yonge street. During the construction of that road, about the year 1845, Jerry was purchased by Samuel Machell, Esq., now of King Station, from Paddy, for a small sum; and about four years after Machell sold him to Moses Yoder, who was then residing in the Township of King, to work on his farm. Mr. Yoder, shortly after the purchase, removed to Elgin County, not forgetting to take Old Jerry along. The age of Jerry now is about thirty-one years.

A HORSE OBSERVER.

Another Old Horse.

To the Editor of THE CANADA FARMER:

SIR,—Having seen an account in the last number of the CANADA FARMER about the oldest horse in the new Dominion, I thought I would write and let you know that there is one as old, if not older, which can be seen on lot No. 18, second concession of the Township of Plympton, County of Lambton. This horse, *Old Charley*, was foaled in the year 1837, or the year of the Rebellion, which will make him thirty-two years of age next spring. This horse has been subjected to the most severe toil. In his younger days he ran many a race in the Township of London, and few could beat him on a mile heat. He was afterwards used as a team horse until he was seventeen years of age; since that time he has worked on a farm. It is only three years since he travelled forty miles in half a day, and last spring he travelled twenty-five miles in three hours and a half. When Old Charley is let loose in a field with other horses, he will play like a colt. He is young in appearance, can hold his own with most young horses, and is sound with the exception of a slight touch of the heaves. D. M. ROBERTSON.

Wyoming, November 5th, 1868.

☞ Hon. John Carling recently shipped from London to Cornwall, for the Hon. John Sandfield McDonald, a fine ram which took the first prize at the Michigan State fair, and two Suffolk pigs, first premium of the Western Fair.

VETERAN HORSES.—A correspondent of the *Western Rural* says: I have two bright bay horses—a mare and a gelding—which I have owned and worked on a farm and on the road since they were four and five years old respectively. The mare is thirty years old, and the horse thirty-one this spring. I have ploughed two acres per day, two and three days in succession this spring in ten hours; I have ploughed sixteen acres in five days with them when they were young.

SHEEP AT U. S. FAIRS.—The Oshawa *Vindicator* says of the Missouri State fair:—The sheep were very largely represented from Kentucky, Indiana, Illinois, Missouri, and Canada. Mr. Millar was there and won honours with his splendid stock of Cotswolds, Leicesters and Shropshire Downs, but Mr. Toms, as usual, led in his department. In long wool sheep, including Leicesters and Cotswolds, and their crosses, he took first on aged ram, first on yearling ram; this is all he showed in this class. On Southdowns, first on aged ram, first on yearling do., first on aged ewes, first yearling ewes. Sweepstakes—best ram and three ewes, first prize; best ram and ewes, first prize; best three ewes, fat, first; best ewe, fat, first; best fat ewe, two years old, first. Sweepstakes on the best flock of sheep, the Society's grand prize of $50 and the blue ribbon. At the Indiana State fair, on Southdowns, he received all the first and second prizes; first on Leicester ram. On pigs at St. Louis, first on boar, first on sow.

Window Propagating Tank.

The following description and illustration of an ingenious contrivance for propagating slips and forcing seeds by a simple and economical application of bottom heat, is taken from the *American Journal of Horticulture*.

"Its chief recommendations are cheapness, utility, and the slight cost both of labour and material with which it can be run.

The chimney of an ordinary kerosene lamp is made of tin, double, and water-tight, so as to hold water. The water in this chimney is connected with the water in the tank by means of pipes through which the water flows. One of the pipes is connected to the chimney at the top, and the other at the bottom, the pipes entering the tank in the different divisions, as shown in fig. 2. By means of this arrangement,

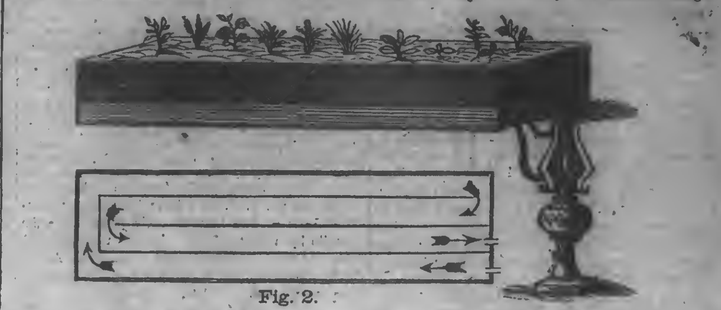


Fig. 2.

when in operation, the water in the tank is kept in constant circulation, according to well-known principles, warming the bed of earth placed over the water, giving to cuttings and seeds, placed in the bed of earth, what is known as bottom heat. Cuttings of roses, shrubs, grapes, and, in fact, of almost any of the trees or plants found in door-yards or lawns, may be started into growth with it.

The cost of constructing one for an ordinary sized window will not exceed five dollars, and may be used many seasons."

Horticulture in Quebec.

To the Editor of THE CANADA FARMER:

SIR,—I have been so busy that I have not had time to write, as I intended, an account of the Flower Show of the city of Quebec. I am afraid it is a great many days after the fair to give any interest to an account of the show of the Quebec Horticultural Society. The great strength of the Society is in the subscriptions of resident gentry, which give the Society a narrow basis. It is not the fault of these gentlemen that the Society is apparently exclusive, for there is no bar to any one paying two dollars to become a member. But they *don't*. It is not taken up so generally by amateurs and non-professionals as it should be. The consequence of this is, that a great deal of the show consists in the display of such things as a gentleman's establishment can send to exhibitions; green-house plants, oranges, lemons, peaches, plums of choice sorts, and grapes, show in force. The grapes of J. Le Moine, Esq., Spencer Grange, were most excellent, as were many others. The black Hamburgh, [illegible] and the delicious Sweetwater [illegible] The above-named [illegible] that size. There is an old lady in the suburbs of Quebec who makes the growth of grapes in the open air her hobby. And admirably she succeeds. In her yard you may see vines (stock [illegible]) growing in flour barrels cut in two. They [illegible] of this letter, as many as forty bunches of grapes on them, most of which will ripen. When the snow comes she will put them in a cellar till the spring. Mrs. Farquhar (for this is our friend's name) has done, in my opinion, a great good in showing that grapes can be grown in our severe climate in *the open air; and* I should like to see a prize offered by this Society for such results as these, because, in such a hard country as this, *anything* that will tend to make life more enjoyable is not only a thing to be simply desired, but earnestly sought after. We are too apt to give the go-by to any idea that our acres of ground can be rendered more productive.

The show of vegetables was very good, comprising first-rate potatoes, good carrots, parsnips, beets, onions, &c. There was a curiosity in the way of cucumbers. Some ingenious man grew some enormous cucumbers, of such great length and irregular shape as to make them represent the name of this Province. I doubt the utility of this sort of thing.

Some beautiful honey was shown by Mr. Joseph Paxton.

There are some prizes for amateurs, but amateurs do not yet take sufficient interest in these things. Perhaps they will by-and-by.

The season has been stretched out to a favourable length. Winter has not yet set in, though it is now snowing.

Potatoes cheap; hay dear; cattle cheap.

PHIALA.

NOTE BY ED. C. F.—Some inquiries appended to the above communication will be noticed in our next. A plant specimen referred to did not arrive

Saving Trees Girdled by Mice.

AT the February meeting of the Northern Ill. Horticultural Society, D. B. Weir, of Lacon, read a paper "On Saving Girdled Fruit Trees." He said he had over a hundred trees, seven years planted, completely girdled by mice. There had been for some time a heavy snow on the ground; and mice being plenty and in a starving condition, with nothing else to eat, they ate all the bark from the trees so far as they could reach; some of them for a foot up and down all around; and portions of the sap wood in some places half an inch deep. As soon as the damage was discovered, which was on the first thawing days, he banked the snow around the trees, and as soon as the soil thawed he banked that a foot high about the tranks.

This was all the attention they received; and today they have all the damaged parts covered by almost as thick a coating of bark as the uninjured portion of the trees. When the girdling is done high up on the trees, banking with soil will be impracticable. If the wounded parts are too high to reach by banking, clay may be bound on with a bandage. The sooner the surface is protected after injury the better. The death of the tree is caused by the seasoning of the sap-wood

Entomology.

The Wheat Midge.

The ravages of this pernicious insect appear to have been less wide-spread this year than usual, though we have observed and heard of its presence in various quarters. Now that the farmers have for the most part threshed their wheat, they can tell to what extent the grain has been affected by this insect, and we trust that they will employ some of the long winter evenings in writing out their experience and acquainting their brother farmers with it through our columns. Those who have been troubled with the midge we strongly advise to plough under their wheat stubble as deeply as possible, and burn all the chaff and refuse left from the threshing; they will thus destroy a large proportion of the larvæ of the insect, and prevent, to some extent, its re-appearance next year. "An ounce of prevention is worth a pound of cure." If farmers will not make some little effort—take some little trouble to prevent the recurrence of a particular insect foe—they cannot expect to receive much pity when they come to bemoan their wasted crops next year.

So much as regards *prevention;* but is there any *cure?* It is very hard to say. We believe that there is a cure, but it is not easy to apply it, and if there should be expense attending it, some will at once cry out that "the remedy is worse than the disease—we will have none of it." Some months ago (C. F. May 1, page 134), we spoke of the parasites of the wheat midge, and the possibility of introducing them into this country; we also mentioned that we were in correspondence with an English Entomologist on the subject. Mr. Francis Walker, F. L. S., of the British Museum (Entomological Department), London, England—a well-known authority on *Diptera*, the order to which the midge belongs, as well as on other insects—wrote to us on the subject some time ago. We did not publish his remarks before, as we hoped to receive some further information; but now all attempts will have to be deferred to another season. He stated as follows: "I doubt much whether the parasites of the wheat midge can be introduced successfully into Canada. I can hardly attend to that matter this year, and I know only three Entomologists who are acquainted with the tribes of insects to which the parasites belong, and I have written to them about the matter. In many cases I think that insects are more kept in check by other means than by their parasites. *Platygaster tipulæ* is the chief parasite of the wheat midge; the British species of *Platygaster* are very numerous; there are probably several species in Canada, and perhaps one of them may become a parasite of the wheat midge. I hope that some Canadian Entomologist will study there the species of that genus, and of other parasitic Hymenoptera, and their economy. Besides the wheat midge, there may be in Canada some species of *Cecidomyia* feeding on grapes, and each attacked by a species of *Platygaster;* the latter, when it assumes the fly-state, might be placed close to the wheat midge, and perhaps in time it will take to it as its prey."

There are a large number of species of *Cecidomyia* known to inhabit North America, and two are mentioned by Baron Osten Sacken, in his monograph on this family, as feeding upon the wild grape. The habits of these, however, are different from those of the wheat midge, the former producing a gall, and the latter not. Another midge attacks the gooseberry, causing the fruit to become prematurely red and rapidly putrid. It is a well-known insect, and may be found to have parasites which could be utilized as Mr. Walker suggests. The experiment is worth trying; but our own impression is that it is very unlikely that the parasite of one midge would take to another, except where it was shut out from its own proper species, and then where both are exposed to its attacks, it would prefer the species natural to it rather than the other. The great difficulty in the way of effecting these experiments successfully, and of introducing a midge-parasite from one country to another, is the extreme minuteness of the objects, which demand an amount of time and patience for observation that few of us can afford to give them.

Entomological Quackery.

We clip the following paragraph from the *Iowa Homestead* of July 22, 1868:

The Curculio.—A correspondent of the *Canada Farmer*, writing from Sarnia, says that he saved his plums from the curculio in the following manner: He put woollen rags around the base of the trunks of his trees, having first steeped them in tanner's oil, renewing the application of oil after every heavy shower. He put chloride of lime in a saucer in the fork of the tree. He spread white cloths on the ground under the trees, poured sulphuric acid on the lime, and the fumes brought down all insects from the trees. He also tried jarring the trees, and by these means he succeeded in raising a large crop of plums.

This reminds us of a letter to a noted quack which we once came across, and which read as follows: "Dr. Curcali—Dear Sir: I had a pain in my stomach yesterday; so first of all I took a dose of your never-failing electric oil; then I tried a dose of Dr. Humbug's infallible elixir of lime; and lastly I swallowed a dose of cold-drawn castor oil. In three hours' time my stomach was all right again. Please let me know whether it was the electric oil, or the elixir of lime, or the castor oil that cured me. Yours, truly, Samuel Simpleton."

We incline to believe that it was the "jarring the trees" that saved the plums; and that the "tanner's oil" and the "chloride of lime" might just as well have been daubed on to the roof of the house, for any effect that they had towards keeping off the curculio. Will people never find out that curculios can fly, and that attempting to head them off from crawling up the trunks of plum trees by oily bandages is all a matter of moonshine?—*American Entomologist.*

Note by Ed. C. F.—We have invariably recommended our readers to save their plums from the curculio by means of the "jarring process," and gathering up and destroying all fallen fruit. Any of the other methods that so frequently go the rounds of the press we believe to be utterly worthless

An Insect Powder.

A well-known German traveller, F. Jager, in his "Sketches of Travel in Singapore, Malacca, Java," (Berlin, 1866), describes the powder of the *Pyrethrum roseum* as a specific against all noxious insects, including the troublesome mosquitoes and those which attack collections. He says:—"A tincture prepared by macerating one part of the *Pyrethrum roseum* in four parts of dilute alcohol, and, when diluted with ten times its bulk of water, applied to any part of the body, gives perfect security against all vermin. I often passed the night in my boat on the ill-reputed rivers of Siam without any other cover, even without the netting, and experienced not the slightest inconvenience. The 'buzzing,' at other times so great a disturber of sleep, becomes a harmless tune, and, in the feeling of security, a real cradle song. In the chase, moistening the beard and hands, protects the hunter against flies for at least twelve hours, even in spite of the largely increased transpiration due to the climate. Especially interesting is its action on that plague of all tropical countries, the countless ants. Before the windows and surrounding the whole house where I lived at Albay, on Luzon, was fastened a board six inches in width, on which long caravans of ants were constantly moving in all directions, making it almost appear an uniformly black surface. A track of the powder, several inches in width, strewed across the board, or some tincture sprinkled over it, proved an unsurmountable barrier to these processions. The first who halted before it were pushed on by the crowds behind them; but, immediately on passing over, showed symptoms of narcosis, and died in a minute or two, and within a short time the rest left the house altogether."

The Plague of Insects.—The Insect Exhibition held in Paris has led to the formation of an Agricultural Entomological Society. The objects of this Society are the propagation of useful insects and the destruction of noxious ones.

Poultry Yard.

Ontario Poultry Association.

A meeting of this Association was held in the Agricultural Hall, on Monday, 9th inst., but, owing to the unfavorable weather, there was not a large attendance. After the usual preliminary routine business, the Secretary read a communication from Mr. R. S. M. Bouchette, Commissioner of Customs, in reference to imported poultry, which was published in our last issue, and from which it appears that these importations are not exempt from duty, as some of the members had been led to believe. The subject of the proposed Fall Show was then discussed, but taking all things into consideration, it was not deemed advisable to hold one at this late season of the year, and the project was therefore abandoned. This will, no doubt, be a disappointment to many intending exhibitors, some of whom have imported birds from Europe at considerable expense. The Society have, however, encouraging prospects for a good exhibition next year, and several communications were read which show that through their means considerable interest has been excited throughout the country in improved breeds of poultry, and a number of reports were furnished of the success achieved at various agricultural exhibitions by birds procured at the last poultry show in Toronto. Col. Hassard's Cochin Chinas, in particular, had won distinction wherever they had been exhibited; and one breeder had raised from a pen of his birds forty chickens during the past season. The Brahma Pootras furnished by Mr. T. McLean had also given entire satisfaction; and in other breeds a marked improvement in the poultry yard was manifest wherever the Society's stock had been introduced. Some important measures were discussed with a view to putting the Association on a still better footing, and a committee was appointed to consider them more fully, and report, if possible, at the next meeting in December.

Brahma Pootra Fowls.

To the Editor of The Canada Farmer:

Sir,—On seeing the cuts of the dark Brahmas in the Canada Farmer (vol. 5, No. 1), that were imported by Mrs. Varley, of Toronto, and always having a fancy for fowls, the splendid representation rather gave me the hen fever. I consequently attended the Ontario Poultry Show held in Toronto last April, for the express purpose of purchasing; but was rather surprised to find that the birds were held so high, the first prize pair of dark Brahmas imported being valued at fifty-five dollars, and the second prize pair, imported, forty dollars. However, I purchased the second prize pair, imported by R. A. Wood, Esq., Toronto; also a cock and two hens of the light Brahmas from him; but the dark hen proved barren. Consequently, I again visited Mr. Wood's poultry yard in order to purchase another, as he told me when I purchased the first lot that he expected more out soon; and I found that another pair had arrived, and also that he had purchased the first prize pair imported by Mrs. Varley, as above referred to, and that he had a fine lot of chickens raised from them, all of which I purchased (with the exception of one of the cocks, that died July last); and now, having Mr. Wood's entire stock, in addition to my own, it makes me a yard of over fifty birds, second to none in the Province. There are a number of pairs of imported fowls among them, including birds that took the first and second prizes at the last Ontario Poultry Show, and I shall spare no pains nor expense in breeding and keeping them pure, and shall supply customers with fowls and eggs at prices that cannot fail to give satisfaction. For list of prices see advertisement in this number.

H. M. THOMAS.

Brooklin, November 8th, 1868.

The Household.

A Lady's Letter.

To the Editor of the Canada Farmer:

Sir,—In your last issue (October 15th) I find an interesting letter from "Cultivateur," on the subject of "The Ladies and the Canada Farmer." My bump of feminine esteem is gratified by "Cultivateur's" assertion that the reticence on our part, of which he speaks, is to be regretted. I had never thought of the possibility of such a case, but now that the subject is placed before us in that gentleman's candid and pleasant style, I am quite willing to confess that I think a little stirring up might do us good.

For my own part, I have been an interested reader of your valuable journal since its first publication, and like it better this year than ever. In our household it is eagerly looked for, and thoroughly read and studied. I believe it is the same in many, many homes, and that *my* sex are as anxious for the arrival of the Canada Farmer as your own. If this be so, lack of interest cannot be laid to our charge. Neither do I think that, as a rule, we are unwilling to impart ordinary information which we may have found valuable to ourselves; but I *do* think the Canadian women, educated ones too, have a habit of thinking and saying, "Oh, *everyone* knows *that*," and thus information that might be of real value to others is often lost. I am myself guilty in this sense, since I should never have dreamt of writing for so substantial a periodical as the Canada Farmer but for "Cultivateur's" reminder. But now, please, since you say we ought to write, you might give us a hint also as to the subjects for our feminine pens. Am I to enter on the poetical, and talk of our really beautiful Canadian flora, and of the glorious tints of foliage displayed on every side this autumn?—or must I keep to the practical, and tell you of the consternation of our new neighbours on hearing my father's plan of soiling cattle, and which in their opinion will assuredly lead us to ruin by a short track? Perhaps you may enjoy, as I did, hearing of the conclusion arrived at by some labourers here—that the boiled hoofs dug in under our young orchard were for the express purpose of *raising calves* by a new English method.

If the doings on our "farm of ten acres," or the comments thereon of an unusually ignorant neighbourhood, would be of interest to you, Mr. Editor, to "Cultivateur," or to any of your readers, gladly would I endeavour to vie even with my American cousins, and try to lift my grain from the mountain of opprobrium resting on our *silent sex*, and thus prove that we are willing and ready to do our share when once shown that our efforts are appreciated or required.

Thanking you, Mr. Editor, warmly for the pleasure and profit so constantly afforded us in your valuable paper, and thanking "Cultivateur" too for his kindly remarks, I am sincerely yours.

A YORKSHIRE LASS.

Hull Township, Oct. 25th, 1868.

Note by Ed. C. F.—"Cultivateur" has also our thanks for having elicited the above pleasant communication, which is proof direct of the truth of his assertion, that there is literary aptitude among the female readers of the Canada Farmer to enrich its pages, if it could only be called forth. We hope that our fair correspondent will follow up this first letter by others in her own style, and we prefer leaving the choice of subject to herself. Anything in the range of domestic economy or rural affairs will be in place. We trust also that others of the same sex, stimulated by this example, will favour us with their communications.

The Chemistry of Furniture.

Young housekeepers do not always understand the theory of the chemical and mechanical action of different substances on articles of furniture. The substances from which furniture is chiefly exposed to injury are water, oils, alcohols and acids.

Acids act on marble. Marble is itself composed of carbonate of lime; that is, it is a compound of carbonic acid and lime. Now the carbonic acid has a comparatively weak affinity for lime, and most other acids will prevail over it and take its place when brought into contact with it; thus destroying the texture of the stone, liberating the carbonic acid, and leaving nitrate of lime, or sulphate or acetate of lime—as the case may be—in the form of a white powder in its place. But oils, alcohols and water produce no effect whatever on marble.

All varnished or polished surfaces of wood, on the other hand, while not injured usually by acids, are attacked by alcohol. Varnishes are composed of different gums and resins, which are generally soluble in alcohol. Many of them are made by dissolving the material in alcohol, so as to liquefy them, and then when they are applied the alcohol evaporates, leaving the gum or resin in a thin, even coating over the whole surface.

If any alcoholic substance comes upon such a surface, whether it be alcohol itself as used for lamps, or spirits of any kind, or even wine, which contains but a small percentage of alcohol, the varnish is attacked, a portion of it dissolved, and the brilliancy of the surface is destroyed.

Oil will not attack either marble or varnished surfaces, and will not do any injury except to naked wood or other porous substances which admit it into the pores, from which it cannot afterwards easily be expelled.

Water affects no substances except such as have open pores exposed, in which case it enters and causes the substance to swell, or such as are soluble in water, as glue in joints, and mucilage or gum-arabic, used sometimes for attaching superficial ornaments to fancy work.

The practical lesson to be learned from this is, that housekeepers must take care in dealing with furniture to keep water away from everything soluble in water, oil from everything porous, alcohol from varnish, and acids from marble.—*Rural American.*

Poetry.

Our Fathers.

BY HON. JOSEPH HOWE.*

Room for the dead! Your living hands may pile
Treasures of art the stately tents within;
Beauty may grace them with her richest smile,
And genius here spontaneous plaudits win.
But yet, amidst the tumult and the din
Of gathering thousands, let me audience crave;
Place claim I for the dead. 'Twere mortal sin,
When banners o'er our country's treasures wave,
Unmark'd to leave the wealth safe garner'd in the grave.

The fields may furnish forth their lowing kine,
The forest spoils in rich abundance lie,
The mellow fruitage of the clustered vine
Mingle with flowers of every varied dye;
Swart artizans their rival skill may try,
And while the rhetorician wins the ear,
The pencil's graceful shadows charm the eye;
But yet, do not withhold the grateful tear
For those and for their works who are not here.

Not here? Oh, yes! our hearts their presence feel,—
Viewless, not voiceless; from the deepest shells
On memory's shore, harmonious echoes steal;
And names which in the days gone by were spells,
Are blent with that soft music. If there dwells
The spirit here our country's fame to spread,
While every heart with joy and triumph swells,
And earth reverberates to our measured tread,
Banner and wreath should own our reverence for the dead.

Look up, their walls enclose us. Look around;
Who won the verdant meadows from the sea?
Whose sturdy hands the noble highways wound
Through forests dense, o'er mountain, moor, and lea?
Who spanned the streams? Tell me whose works they be,—
The busy marts where commerce ebbs and flows?
Who quelled the savage? And who spared the tree
That pleasant shelter o'er the pathway throws?
Who made the land they loved to blossom as the rose?

Who in frail barks the ocean surge defied,
And trained the race that live upon the wave?
What shore so distant where they have not died?
In every sea they've found a watery grave.
Honor forever to the true and brave
Who seaward led their sons with spirits high,
Bearing the red-cross flag their fathers gave;
Long as the billows float the arching sky
They'll seaward bear it still—to venture or to die.

The Roman gathered in a stately urn
The dust he honored—while the sacred fire
Nourished by vestal hands, was made to burn
From age to age. If duly you'd aspire,
Honor the dead; and let the sounding lyre
Recount their virtues in your festal hours;
Gather their ashes—higher still, and higher
Nourish the patriot flame that history dowers;
And o'er the Old Men's graves go strew your choicest flowers.

* Written on the occasion of holding the first Provincial Industrial Exhibition in Nova Scotia.

Miscellaneous.

Alcohol.

The following extract is part of an article in the *Scientific American* on alcohol, regarded in a purely scientific point of view. We commend the facts stated to the thoughtful consideration of all concerned:—

"We judge of the nature of alcohol by its effects on animate and inanimate bodies. Take the latter first. Alcohol is one of the best, if not the very best antiseptic known. Matter, which could be by no other means so well preserved from decay, change of form, or alteration of structure, is held *in statu quo* by alcohol. Extracts of the qualities of herbs, minerals and animal substances, useful in medicine and the arts, can be preserved in their purity and power by no other agent so well. Beside its antiseptic qualities, alcohol is a stimulant, aiding in the effect of the drugs or extracts with which it is combined. It stimulates the physical forces of the human system when rendered inactive by disease; it is a 'force-put,' a 'make-shift,' as mechanics would say; useful to keep the enfeebled body from the grave, and to impart new life to organs almost past sensation by other means.

And there its usefulness ends. It never imparted additional strength to the robust; it never made the old young; it gives nothing; it only acts on what there *is*. When pure, it is a deadly poison, antagonistic to life. Its effect on the lining of the stomach, intestines, and other internal organs—the mucous membrane—can be produced even upon the epidermis, or external skin, to such an extent as to blister. Alcohol does not assimilate—has no affiliation with the secretions of the human organism. It passes out of the stomach in precisely the same condition in which it entered it. It shows itself in the breath of the habitual drinker, in his perspiration, his evacuations. It is still alcohol. Part may be retained in the blood, which it thins and weakens. For a time it is held in the brain, stimulating it to unnatural activity; but it leaves the organ as it was before, or rather enfeebled by the task it performed while under the subtle influence of the wine spirit.

☞ It is stated that rags, as a material for paper making, have been so far superseded by Esparto grass that seven-tenths of British paper is now made from it. The London *Times* is printed on paper made of this material.

Peat Meadows are receiving much attention in Massachusetts. Many of them have passed into the possession of manufacturing companies. The peat is pressed in a machine, dried, and used for fuel, especially for furnaces.

Singular Facts in Human Life.—The average length of a life is about 28 years. One quarter die previous to the age of 7, one-half before 17. Only 6 of every 100 reach the age of 65, and not more than 1 in 500 lives to 80 years of age. Of the whole population on the globe, it is estimated that 90,000 die every day, about 3,700 every hour, and 60 every minute, or 1 every second. These losses are more than counterbalanced by the number of births. The married are longer lived than the single. The average duration of life in all civilized countries is greater now than in any anterior period. Macauley, the distinguished historian, states that in the year 1685—not an unhealthy year—the deaths in England were as 1 in 20; but in 1850, 1 in 40. Dupin, a well-known French writer, states that the average duration of life in France, from 1776 to 1846, increased 52 days annually. The rate of mortality in 1781 was 1 in 29; but in 1850, 1 in 40. The rich live on an average 42 years, the poor only 30 years.

Among the Calves.—Jim Smith was a noted auctioneer. One day he was selling farm stock. Among the articles to be sold was a heifer, very attractive in her appearance, and consequently "Jim" dwelt quite extensively on her many excellencies, winding up with the eloquent flourish that she was as "gentle as a dove." Thereupon a long, slab-sided countryman, whose legs were some twelve inches longer than his pants, approaching the heifer and stooping down, commenced handling her teat. Bossy, not relishing such familiarity, lifted her hoofs and laid "Greeny" sprawling some ten feet off.

"There," said "Jim," "that shows one of her best traits; she'll never allow a strange calf to come near her!"

"Greeny" meanwhile picked himself up, and giving his bushy pate a harrowing scratch, exclaimed: "No wonder, when her own calf has been bleating around her all day!"

Advertisements.

Paxton, Tate & Co., Port Perry, Ont.,

MANUFACTURERS OF THE

MARSH HARVESTER!

AGRICULTURAL IMPLEMENTS

OF ALL KINDS,

STAVE & SHINGLE MACHINERY,
OSCILLATING MULLEY SAWS,
TURBINE WATER WHEELS,
MILL CASTINGS, etc., etc.,

MADE TO ORDER.

Repairing of all kinds promptly attended to.

WARRANTY.

We warrant the Marsh Harvester to be well made, of good material, and when properly used, not liable to get out of repair; to be a good grain-cutting machine upon which two experienced binders can bind in average grain, on suitable ground, from eight to twelve acres in twelve hours; and that it will work on as rough ground as any other Reaper

PAXTON, TATE & CO.

Port Perry, March 23, 1868. v3-7-tf

IMPORTED FOWLS FOR SALE.

ONE or two Pairs of DARK BRAHMAS, price $25 per pair. Three pairs dark chickens, from the first dark Brahmas imported by Mrs. Verley, Toronto, price $10 per pair. Six pairs light Brahmas, $4 per pair. Cockerels, single, of either variety, $5. Eggs, from first prize imported fowls; dark, $5, light $3 per dozen, in the Spring.

5-22-1t H. M. THOMAS, Brooklin.

Duncan's Improved Hay Elevator.

PATENTED April 15th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned. JAMES W. MANN,

v4-20-tf Port Dover, Ont.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co.,
167 King Street East. Medical Hall, Toronto.
v4-14-tf

THE BRIGHTEST

ITALIAN QUEENS

IN AMERICA.

HAVING IMPORTED three extra fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale. Price as usual, $5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. B. hive $18—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention

J. H. THOMAS,
Apiarian,
Brooklin, Ontario.
Aug. 1, 1868, v5-15-tf

SHORT-HORNED CATTLE

AND

IMPROVED FARM STOCK.

M[illegible] Thirty years Lived ten years with Mr. [illegible]ford, Author of "The Herd Book," prepared to buy and sell Short-Horned Cattle, or any kind of pure bred farm stock, on commission for others, or execute commissions in the old country.

"The Circular," a record of Short Horn sales in England, and list of animals for private sale, published at intervals. Price $6 annually. Post free.

JOHN [illegible]TON,
15 [illegible] Place,
v-5-18-4t-a.o.t. London, England.

Markets.

Toronto Markets.

CANADA "FARMER" Office, Nov. 14th, 1868.

THE PRODUCE MARKET.

The grain market has been quiet and dull. Spring wheat has kept steady, but in other grades there has been a gradual decline. Flour has also declined. Provisions are without material change.

FLOUR AND MEAL.

Flour—The market has been dull and drooping. Lots of No. 1 superfine were offering early in the week at $5 5c., and later at $5; declining to-day to $4 80c., at which price a 100 bbl. lot changed hands. The demand is very limited, and latterly it has been difficult to effect sales. Extra is nominally worth $5 75c. A lot was offered at that price without buyers.

Oatmeal—There is a small trade doing. 100 bbl. lots sell at $8. Broken lots are worth $6 25c. to $6 50c.

Cornmeal—Worth, in 100 bbl. lots, $4. In smaller lots, $4 25c. to $4 50c.

GRAIN.

Wheat—The market is very quiet. There is some demand for spring wheat, and not much offering. The last sales of car lots were at $1 11c. To-day a car of midge-proof sold at $1 10c., f.o.b. Fall wheat was offering at from $1 10c., to $1 20c., with no buyers. There is little or no demand for fall, and lots are almost unsaleable. On the street market there is little or nothing doing. The roads are in such a bad condition and the markets so dull that farmers have no inducements to bring their grain in. Fall wheat sold as low as $1 10c. on the street to-day, and spring wheat on the street sold at $1 8c.

Oats—The market is quiet and dull. Sales of lots were made at 50c., on the track—on the street market 53c., is paid.

Barley—The market is quiet and dull. There is now little or nothing doing. Two cars No. 2 sold at $1 26½c. Holders are generally asking $1 35c., and buyers would pay $1 30c., for choice lots. On the street market there is only a very limited quantity coming in. Buyers are paying from $1 30c. to $1 35c.

Peas—Market very dull. We heard of no sales. Street price 85c. to 86c.

Rye—Market quiet. Selling on the street market at 85c.

PROVISIONS.

Pork—There is as yet very little new mess in the market. No enquiry. Prices are still nominal.

Cheese—There is no change in the market. The factories still hold out for higher prices than buyers are inclined to give. Prices are unaltered at 11c. to 11½c., for factory.

Bacon—In better supply. Prices remain firm. No quotations given.

Lard—Firm, and in good demand. The present high price of butter tends to keep lard firm.

Butter—As the closing of navigation is now daily expected, lots for shipment to England are not so desirable. Still, on the whole, there is no weakness, it being generally considered that the small stock reserved will be wanted for local business. Fine butter finds a ready sale, and we hear of some ventures to New York without loss. Anything, however, below first class hangs fire at quotations. Prices in the country have kept advancing while we have remained stationery, and a margin for dealers has become very fine indeed. Should the demand in England slacken, we have no other chance than to decline prices here, it being quite apparent now that New York can be supplied from the west with its local requirements, and the Californis drain on New York being light, there is no prospect of stiffer rates in that city—unless for extra choice. Ordinary, 20c. to 21c.; medium, 22c. to 22½c.; sweet dairy (for retail grocers), 23c., to 24c.

Eggs—The high prices have checked consumption—prices nominal at 19c. to 20c.

THE CATTLE MARKET.

Trade during the week was good. There was a fair demand for cattle to export to Montreal. We quote per 100 lbs. dressed weight: 1st class, $6 to $6 50c.; 2nd do., $5; 3rd do., $4. *Sheep* are offering freely. There is an active demand. All the lots offering found buyers. We quote:—1st class, $4.; 2nd do., $3.; 3rd do., $2.

Hides and Skins—Hides, green, rough per lb., 6c., to 6½c.; do. cured and inspected, 7¾c. to 8½c.; do. dry, 11c., to 13c. Calfskins, green, 10c.; do. cured, 12c.; do. dry, 18c. to 20c. Sheepskins, 60c.

Dressed Hogs—The market is hardly fully supplied. The lots offering are principally railway lots. Prices range as follows:—Weighing 120 to 150—$6 to $6 25c.; 150 to 200—$6 25c. to $6 50c.; 200 to 300—$6 50c. to $7. Choice farmers' hogs for butchers might bring $7 25c., and even higher.

HAY AND STRAW.

Hay—During the week the supply was not equal to the demand, on account of the bad condition of the roads. Several loads brought as high as $20. Selling at from $18 to $20.

Straw—Very scarce. The loads offering are nearly all rye straw. Selling at from $10 to $14.

Apples—The demand continues good, and superior qualities are higher. From $1 to $2 per bbl. is paid.

Salt—Market firm. American unchanged, $1 60c., in bbls. on the wharf. Liverpool coarse is worth $1 50c. to $1 40c. Canadian sells at $1 60c.

Hops—Selling in single bales at from $10 to 1

Potatoes—A great many car loads on the market at 90c. Some consignators are holding at 75c., but no sales could be effected at those prices. Retail lots sell at from 75c. to 80c.

Hamilton.—*Wheat*, white, $1 25; do, red winter, $1 07 to $1 08; do, spring, $1 03 to $1 06. *Barley*, $1 25. *Peas*, 80c. to 85c. *Oats*, 45c. to 50c.

Galt.—Wheat continues at about last week's prices. *Potatoes* are scarce, and sell at from $1 to $1 12½ per bag. *Turnips* from 12½c. to 15c. per bushel. *Carrots* from 20c. to 25c. per bushel. *Oats*, 48c. to 50c. Poultry coming in more plentifully. *Turkeys*, 60c. to 75c. *Chickens*, per pair, 25c. to 30c. *Geese*, 37½c. to 50c. each. *Ducks*, 37½c. to 50c. per pair. *Pork* from $7. *Hay*, $11 to $12 per ton.

Guelph Markets.—Fall wheat, $1 20 to $1 28. Spring wheat $1 05 to $1 09. Oats, 55c. to 58c. Barley, $1 15 to $1 20. Peas, 80c. to 81c. Wool, 27c.

London Markets.—Fall wheat, white, $1 06; midge-proof, $1 to $1 05; spring wheat, $1 04 to $1 05; barley, $1 10 to $1 20; oats, 71c. to 76c.; peas, 76c. to 81c.; corn, per bushel, 85c.

Contents of this Number.

	PAGE
OFFICIAL PRIZE LIST:	
Award of Prizes at the Provincial Exhibition	337—344
THE FIELD:	
A good Crop of Turnips	344
Pasturing New Seeded Fields	344
CORRESPONDENCE:	
How to Foretell the Weather	345
Standard Weight of the bushel	345
Tumours	345
Muskoka	345
Coal Tar as a Substitute for Paint	345
EDITORIAL:	
New Series of THE CANADA FARMER	345
Land Questions in the Ontario Legislature	346
Book Notices—The Carolina Farmer; the Little Corporal; Hemp and Flax	346
Agricultural Engineering	346
AGRICULTURAL INTELLIGENCE:	
Board of Agriculture	346
The English Harvest of 1868	347
Sale of Mr. Snell's Stock	347
Immigration Conference	347
A New Branch of Industry	347
Potato Crop	347
Esparto Grass	347
The Gamgee Meat Preserving Process	347
The Wheat Crop of California	347
STOCK DEPARTMENT:	
"Bolivar," the favorite Shorthorn in Great Britain, (with illustration)	348
Weaning Colts	348
"Old Jerry"	348
Another Old Horse	349
Veteran Horses	349
Sheep at the U. S. Fairs	349
HORTICULTURE:	
Window Propagating Tank (with cut)	349
Horticulture in Quebec	349
Saving Trees Girdled by Mice	349
ENTOMOLOGY:	
The Wheat-Midge	350
Entomological Quackery	350
An Insect Powder	350
POULTRY YARD:	
Ontario Poultry Association	350
Brahma Pootra Fowls	350
THE HOUSEHOLD:	
A Lady's Letter	351
The Chemistry of Furniture	351
POETRY:	
Our Fathers	351
MISCELLANEOUS:	
Alcohol	351
Peat Meadows	351
Singular Facts in Rumen Life	352
Among the Calves	351

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 50 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for	NINE DOLLARS.
TWENTY COPIES for	SIXTEEN DOLLARS.
FORTY COPIES for	THIRTY DOLLARS.
ONE HUNDRED COPIES for	SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director.

VOL. V. No. 23. TORONTO, CANADA, DECEMBER 1, 1868. POSTAGE FREE.

The Month.

DECEMBER brings the indubitable winter, as surely as July does the summer. Whatever dreamy expectations we may have had of possible Indian summer, vanish now. Pleasant weather indeed we may have, but it will be pleasant wintry weather, with perhaps now and then a day so fine and warm that it seems to have lost its proper place in the year. Clear, bracing, but chilly, air will quicken the pulse, and send the blood coursing through the veins with unusual vigour. The snow will wrap the earth in its white coverlet, and all things will yield to the sleep of winter, and to the reign of the frost king.

The following are the mean temperatures for December:—

Stratford	22°65′
Hamilton	26°96′
Berrie	23°94′
Toronto	25°96′
Belleville	22°85′
Montreal	24°12′
Quebec	21°20′
St. John, N. B.	25°93′
Halifax	28°00′

We are accustomed to think and speak of winter as a season of comparative rest and leisure for the farmer. But how far that is true and applicable to individual cases, depends on a variety of circumstances. Winter affords but little respite to the man who has a large area of wild land to clear, or a numerous herd of cattle to feed. These, however, are exceptional cases, and most farmers, when winter fairly sets in, feel that they are less driven than at any other period of the year. But while "broken weather," as it is often termed, lasts, every one has enough to do. That charming writer on rural affairs, "Ike Marvel," says: "Even into December the work of country improvements may go safely forward; the clearing of new land, the thinning of over-crowded forest growth, the building of walls, the construction of walks and roads,—for these, severally, or together, no better time can be found than that which immediately precedes the locking frosts of winter. And when the dead-lock is fairly established,—so far as treatment of the land goes,—the open sunny weather of December still invites us many a day out of doors. If we have rocks to move, they glide easily over a frosted and stiffened turf; the brambles and waste growth of outlying pastures cut easiest when the earth is locked unyieldingly about their stems; the woods, despoiled of their leaves, give free insight and outsight to their most sequestered nooks." These are but examples of the thousand and one things that may be done just at the setting in of winter, and there are few so beforehand with their work as not to be caught by the "dead-lock" with some needful preparations or unfinished undertakings that must needs be postponed until another year. Most people, in regard to work, are like children in respect to tempting food; too greedy. The child's eye is proverbially larger than his stomach, and even so the farmer's eye readily takes in more work than his hand can accomplish. Indeed, generally speaking, plans and achievements too often correspond very poorly. "To will is ours, but not to execute." Happy are those on whom winter does not shut down with a host of half-accomplished schemes of preparation and improvement!

The hints given last month, as to the care of stock, are just as applicable this month, and will become more so as the temperatures go down into mid-winter. In fact, the care of his animals may be put down first on the list of the farmer's winter duties. Whatever arrangement or expedient can be contrived to make this duty easier, and secure its being faithfully performed, should by no means be neglected. Convenience of access to food, well-hinged and securely fastened doors; ventilation without currents of cold air from unstopped cracks and openings; ready means of clearing out manure; are things that should by all means be secured. Manure-making is also a December as well as November job—indeed, it is a job for all the year round. The great want of every farm in the land is more manure, and no opportunity of making it should be let slip. One valuable material for manure-making can on some farms be better got at and hauled in the winter time than at any other season, namely, swamp muck. Any farmer who is fortunate enough to be within a mile or two of any ashery, would find it pay to haul as much as possible of the leached ashes on to his land, in good sleighing. It is heavy material, and far more of it can be hauled in a sleigh, when the winter roads are at their best, than on a waggon, however good the wheeling may be.

Wood-cutting and hauling is another item of winter work on the farm. The year's supply for the family should be thought of now. To burn green wood, and to bring it load by load from the bush as required, are among some of the most disgraceful points of slipshod farming. The wood-lot should be prudently managed, and made to last as long as possible. There are few, if any, parts of the country to which this advice is not applicable, now that the consumption of our forests by increasing population and extending railroads is rendering firewood a valuable market article all over the land. The days of reckless cutting, slashing and burning, it is to be hoped, are over for ever. Little as some think it, the time is not far distant when we shall find it needful to replant forest trees in localities where but a few years ago there was prodigal waste of timber, while it was abundant. Not only firewood, but fence material, should be got out in winter, for use in early spring, where new fences require to be built, or old ones need repair.

When out-door work cannot be done, in-door jobs may well claim attention. There is what the Irish labourer calls "ridding up," or what Mrs Stowe's "Aunt Chloe" styled "claring up." An air of neatness should characterize the barns and stabling. If there are boys or hired men about, they are apt to display a wonderful faculty for getting things into disorder and out of place. Every now and then the places they haunt will need putting to rights. The law, "a place for everything and everthing in its place," will often be more honoured in the breach than in the observance. Nevertheless, every effort should be made to have it obeyed. Farmers who have tools and a shop of some kind, may improve winter leisure by making racks, gates, rollers, drags, and a variety of other articles that will be in request when the busy season comes round again. This, too, is the time for balancing up farm accounts, taking stock of the year, considering the improvements that may be made on past operations, and laying wise plans for the future. The long evenings are favourable, for reading, for attending farmers' clubs, for making social visits, and for indulging in home recreation. A moderate amount of time may very properly be given to innocent entertainments by which the spirits are enlivened, and the powers of body and mind freshened for a resumption of the stern business of life. There is no reason why winter should be either a dull or an idle time.

Last, but not least, early winter is the time for renewing subscriptions to Agricultural journals, and making efforts to extend their circulation, and we take the opportunity of urging both these duties on the readers of the CANADA FARMER. Prompt renewal of subscriptions is important, that there may be no intermission of its visits to the homes where it is a regular and, we trust, a welcome visitor, while one of the best ways of promoting the advancement of agriculture is to induce as large a number of persons as possible to take a journal whose constant aim is "to improve the soil and the mind." As will be seen by the Prospectus which we publish on our last page, a new series will begin on the 1st of January, 1869, when certain changes will be made, which will, we doubt not, be considered as improvements, and help to augment the popularity and usefulness of the CANADA FARMER.

The Field.

The "Early Rose" Potato.

To the Editor of THE CANADA FARMER:

SIR,—Your extract from the *Practical Farmer*, in your issue of November 1st, relating to the "Early Rose" potato, reminds me of our success with this new and valuable seedling. We procured this last spring, from Messrs. B. K. Bliss & Son, of New York city, one and one quarter pounds of "Early Rose," costing, with postage, $2 50. The tubers were cut as nearly as could be into one-eye pieces, and were planted from eighteen to twenty inches apart, alongside and in the same soil as our common garden varieties. The plants were almost dried up during the period of our unprecedented drought; but the rains of August had the effect of renewing their growth, which continued till the vines were killed by the frost. Hence no idea could be obtained of their *earliness*, or time of ripening. The potatoes were taken up September 29th, and weighed. They yielded *one hundred and twenty-five pounds* (125 lbs.) *to each pound planted.* We have no doubt the yield would have been much larger had the season been an ordinary one; but it was enough to show what an enormously productive potato the "Early Rose" is. Parties who have tried the "Early Rose" this season report generally of from one to *eight bushels* from the pound of seed.

The potatoes were all of good size (few or no small tubers), many weighing one pound and a quarter each. The great yielding qualities of the "Early Rose," its early ripening, producing marketable potatoes in eight weeks from planting, its fine table quality, its good size and shape, having full eyes, even with the surface of the tuber, and fine appearance—in these last respects being the best of all of the fifteen varieties in our cellar—go to produce a potato of great value.

We also tested, this past season, the principal Goodrich seedlings, from seed procured from original sources, in New York, the results of which are so extraordinary that we shall send an account for publication before next season. Suffice it to say here, that the "Early Goodrich," one of the best, if not the most valuable of the Goodrich seedlings, produced at the rate of 300 per cent more than the common "Reds"—the variety raised in this section for the main crop—and 200 per cent more than "Californias" or "Rocky Mountain" variety, a coarse potato of little value, except for stock feeding, and the largest yield cultivated here. All the varieties were grown on the same soil, and received the same culture in every respect, the object being to get an idea, as near as could be, of their comparative values.

J. F. C

L'Orignal, Ont., Nov. 11th, 1868.

Productive Vermont Farm.

THE Newport (Vt.) *Express* gives the following account of a farm in Derby, on the north line of the State of Vermont, near the Canada border:—

Last summer we spoke of the hay crop of Emora Kingsbury, Esq., of Derby, amounting to nearly eleven tons on a little less than one and three-fourths acres. This was cut June 24, and consisted of timothy, red and white clover; the timothy not headed, and the red clover not all in blossom. Mr. K. now informs us that his second crop on the same piece, cut Aug. 3rd, was 6,188 pounds, or a little over three tons, making the total yield from one and three-fourths acres ten tons, or five and three-fourths tons to the acre. Mr. Kingsbury has scales set in his barn, and weighs all his crops, as well as his stock before and after fattening, and after slaughtering, so that he is able to tell exactly what he is doing, and the results of all his operations.

We were so much interested in Mr. K.'s account of his hay crop, that we have provailed on him to give us some further details of his farming. His farm consists of 192 acres, 40 of which are in pasturage. His corn crop was quite as remarkable as his hay. From 163 rods he has harvested this fall 254 bushel baskets of ears. One basket of this corn, when shelled, made eighteen quarts. This would give a yield of one hundred and forty-two bushels of shelled corn on two rods more than an acre of ground. In reply to our inquiry as to how the land was prepared for the crop, Mr. Kingsbury stated that last year he grew oats upon it with a light dressing of manure; this year he spread a compost of potato tops, cut cornstalks and straw (upon which he yarded his cows last summer), and which was thoroughly rotted; harrowed this in, furrowed four feet apart for the rows, and made the hills a little less than three feet apart in the row; into each hill he put a shovelful of muck on which he had yarded his hogs. Thorough cultivation did the rest. The variety he cultivates is a long-eared 12-rowed sort, which he thinks as early as the smaller kinds, more productive, and yielding a much greater quantity of forage. He says he had by actual weight from the above field 15,360 pounds of fodder, and that this fodder alone is worth as much as the corn and forage together from the same breadth of Canada corn. Last year, from one and one-eighth acres, he raised 237 bushels of ears, and over seven tons of fodder.

Mentioning some other large yields, Mr. Kingsbury stated that in 1860 he raised 762 bushels of oats on nine acres; and in 1866, 531 bushels on seven acres—the first-mentioned crop weighing 35 pounds, and the last 36½ pounds per bushel. Of Jackson white potatoes, Mr. K. has raised this season 192 bushels on 77 rods—one potato weighing 2¾ pounds.

Mr. Kingsbury uses no artificial fertilizers on his farm, relying on his muck beds, his composts and his stock, to produce everything necessary to enrich his land.

While talking over the subject of exact weighing and measuring, and their importance to the farmer, Mr. Kingsbury alluded to the shrinkage of beef cattle and hogs in slaughtering, and gave us a few figures from his books to show that this shrinkage is usually overrated, especially by drovers and dealers. Four fat hogs killed by Mr. Kingsbury shrank 12½ per cent., or one-eighth. Two cows killed Dec., 1866, shrank—one 32 per cent. and the other 37 per cent. A four-year-old heifer killed Dec., 1867, dressed 987 pounds, and shrank less than 28 per cent. The figures are worth remembering.

Irrigation of Meadow Lands.

THE advantages and practicability of irrigation are being considerably discussed. The *Utica Herald* gives the following account of the results of the plan practically carried out:—

"Mr. Emey Allen, of West Turin, Lewis County, N. Y., who has a beautiful farm of some 335 acres lying along the foot of a range of hills, has practised irrigation upon his meadows for some years, and with excellent success. He has 100 acres of meadow in one field, the surface quite level, over a considerable portion of which the water is carried in the spring. This meadow lies at the foot of the hills, and streams come down and enter it at different points. In the spring the melting away of the deep snows from the hills and lands above, furnish a large amount of water, which is spread over the meadow, and all fertilizing matter mingled with the water allowed to settle upon the soil. The meadow is not naturally wet, but is dry enough for the plough. The soil is deep and of remarkable fertility, and by a judicious system of irrigation, is made to yield large crops of grass.

Quite a number of acres of the irrigated portions have never been ploughed, the hillocks and uneven surfaces having been levelled with the spade. Mr. Allen estimates the crop of grass grown upon the meadow the present season at 300 tons. We went over this meadow and found it covered with a luxuriant growth of herbage, the whole presenting one of the finest pieces of grass land that we have recently seen.

Mr. Allen says his average yield of hay from 120 acres of meadow, for a series of years, has been, one year with another, not less than 250 tons per year.

Last winter his stock consisted of fifty-seven canal horses, five work horses, two yoke of cattle, twenty-six cows, five two year old heifers, seven yearlings, and twenty-seven sheep, and he sold and drew off twenty-six tons of hay, having several tons left over.

We should have remarked that forty acres of this meadow have never received a portion of manure, but have been kept in a high state of fertility, solely by irrigation. The water is let on very early in spring, and is about three weeks in working itself off. The annual product is about three tons per acre. The grass here is cut but once during the season, and the after-math is fed off in the fall, but never allowed to be closely cropped. Mr. Allen thinks he would get a finer quality of grass by feeding the meadows in spring, say till about the twenty-fifth of May. The grass is mostly timothy, clover and red top, though of course largly intermixed with native grasses. When Mr. Allen's father came into the country and settled here in 1797, the whole country between Turin and Kingston, Canada, was a dense forest, in which no timber had been cut."

How to Kill Wild Oats.

To the Editor of THE CANADA FARMER:

SIR,—The following plan has been found very useful in eradicating wild oats. Plough the stubble early in the fall, and harrow well. Cross plough early in the spring, and after a few days harrow well. About the latter end of May, plough a third time and sow with barley.

This mode of cultivation will do much towards germinating and then killing the foul seed. But should wild oats still appear, there is one more chance. Barley will ripen in time to harvest when the "oats" are yet green, so preventing the seed from shaking off to pollute the land for another year.

Several farmers of my acquaintance have tried this method and found it good.

ROBERT BROWN.

Garafraxa, Nov. 18th, 1868.

Unprofitableness of Hop Farming

OUR American exchanges are comforting unfortunate hop-growers by the publication of the following paragraph from Mr. Caird's, "English Agriculture," in reference to the culture of the hop in Sussex, England, where from 10,000 to 12,000 acres are usually occupied by this crop:—

"This plant requires the richest soil of the farm, and receives nearly all the manure produced, robbing the corn and root crops of the share which rightfully belongs to them. The farmer's attention is concentrated on his hop garden, and the rest of his farm receives very little of his regard, and hardly any of his capital. The operation of the duty gives the business a gambling character. A favourable season, with a large yield of hops, is disastrous to the farmer, as the market value of the article falls, while the duty swells in proportion to the lucky character of the crop. When the crop is a short one the farmer prospers, as the price of the hop rises and the total amount of the duty falls. There is thus a constant succession of chances, extraordinary prices being sometimes realized, which tempt men to further adventure and withdraw them from that steady, persevering industry, without which agriculture cannot be profitably carried on. The uncertainty of prices and crops, and the peculiar bearing of the duty, are such that very few of the hop farmers are enriched by it, many are ruined, and still more are kept on the verge of bankruptcy. It is very probable, therefore, that if the cultivation of hops were to cease, it would in the end be no loss to the Sussex farmer, as his richest land would then be released for the growth of crops of a less hazardous kind, and the rest of his farm receive a fair share of manure and cultivation."

Loss in Stacking Hay.

A FARMER of sound judgment, and large experience in cutting and storing hay, estimates his own loss in stacking at twenty-five per cent. He cuts probably a hundred tons a year, and stacks a fifth part of it for want of barn room. He has very properly made up his mind to build a new barn. We think his estimate is not wide of the mark. There is a large loss from moulding at the bottom of the stack, and old rails, boards, or straw, will not wholly prevent it. Then the whole external surface for three to six inches is weather-beaten, and loses much of its sweetness, and it is not improbable that this loss of aroma extends through the whole stack. The conviction is universal among intelligent men, that barn-stored hay is worth much more than that which is taken from the stack. Why then follow this wasteful practice? Look at the great loss to this farmer who cuts one hundred tons of hay, worth $2,000. According to his own estimate, he pays $100 a year for the privilege of stacking one-fifth of his crop. This is but a small part of the loss where the hay is fed out at the stack. It costs at least a third more hay to keep cattle without shelter. These are strong arguments for more barn-room.—*American Agriculturist.*

Stump Pulling.

To the Editor of THE CANADA FARMER:

SIR,—Some fourteen months ago I inquired, through the columns of your valuable journal, for a screw stump machine, and received the desired information. I purchased one of the above-named machines for about $175. This machine requires three men to clean the stump while being raised; one horse to wind it up; also, one yoke of oxen to move it from one stump to another. On an average, we can pull eight pine stumps per day. In looking over the last number of the CANADA FARMER I see an account of a machine, called the "Pioneer Stump Puller," exhibited at the N. Y. State Fair by C. H. Church, of New Berlin, Chenango County, N. Y," which is said with "two men will raise a weight of 25,000 pounds, and pull 100 stumps a day." If that is so, it puts my machine in the shade altogether. I would like to see a draft of this "Pioneer Stump Puller," and have a full explanation of the same. I think it would pay any person or persons wanting a job of pulling stumps to purchase one of these machines, as I have from two to three thousand stumps to take out, which I will let in lots of from fifteen to twenty-five acres.

I have been paying from sixty-five to seventy-five cents per stump, that is, for pulling and burning off, leaving the land ready for cultivation. Any person or persons wanting a job on the above-mentioned terms can have it by applying to

THOS. BURNHAM.

Sandford, Nov. 6, 1868.

NOTE BY ED. C. F.—Our correspondent had better write for further information to the manufacturer of the "Pioneer Stump Puller," who most likely has an illustrated descriptive advertisement or circular of the machine in question.

Cost and Profit of a Root Crop.

To the Editor of THE CANADA FARMER:

SIR,—At this season of the year one often hears the question asked "whether root crops really do pay;" and as they are certainly becoming daily of more importance in Canadian agriculture, it is probable that many would give them a trial, were they not deterred from doing so by the seemingly enormous cost attendant thereon. If, therefore, some of your readers who have been in the habit of cultivating this crop, would give their experience of the cost per acre, I think it would be conferring a benefit on the farming community.

I append hereto my own estimated cost per acre of a crop of turnips.

Rent	$4 00
Seed, 3 lbs., at 30 cents (say)	1 00
Ploughing twice	4 00
Cultivating, harrowing, &c.	2 00
Hoeing twice	10 00
Pulling	2 50
Carting	2 50
Manure—20 loads at 50 cents	10 00
Carting, spreading, &c.	10 00
	$46 00

There is, besides, the expense of making the drills and putting in the seed. If I am correct in the above estimate, nothing short of an extra crop will balance the cost.

DEWDROP.

Hamilton, Nov. 20th, 1868.

CHOPPING.—A correspondent criticises "Mark Tapley's" directions for using an axe. He takes exception to the weight of the axe recommended, 3 lbs., as the best choppers in his locality usually prefer one weighing about 4 lbs. The length of the chip directed to be taken out, three feet for a tree four feet in diameter, is objected to as out of all proportion, and an impossibility if it is only commenced at the height specified. "Mark Taplcy's" description is no doubt somewhat ambiguous and inconsistent, and there is a manifest error in regard to the weight of the axe-head.

A Table of Dimensions of Dry and Liquid Measures.

THE following useful table is supplied by a correspondent of *Colman's Rural World*. It will be found convenient in making calculations of quantities, or in extemporizing measures when required, by constructing a box of the right dimensions.

DRY MEASURE.

Measures.	Square Vessel. No. of Cubic Inches.	Length.	Breadth.	Depth.	Round Vessel. Diameter.	Depth.
Barrel	10762.0	22	22	22 7-32	23	26 7-8
Bushel	2150.4	13	13	12 3-4	18 1-2	8
Peck	537.6	8	8	8 6-16	10	6 13-16
Gallon	268.8	7	7	6 1-2	7	6 61-32
Quart	67.2	4	4	4 3-16	4	6 11-32
Pint	33.6	3	3	3 3-4	3 1-2	3 1-2
Gill	8.4	2	2	2 3-32	2	2 21-32

LIQUID MEASURE

Measures.	Square Vessel. No. Cubic Inches.	Length.	Breadth	Depth.	R'd Vessel. Diameter.	Depth.
Barrel	7275.5	20	20	18 3-16	21	21
Gallon	231.0	6	6	5 6-16	7	6
Quart	57.75	3 3-4	3 3-4	4 3-32	4	4 19-32
Pint	28.87	3	3	3 3-16	3	4 1-16
Gill	7.22	1 7-8	1 7-8	2 1-16	2	2 9-32

☞ On Mr. Mechi's farm in England, which contains 170 acres, there are 72 acres in wheat and 18 in pasture. This is a leased farm, yet Mr. Mechi used £16, or nearly $80 in gold per acre, and would have preferred to have increased this to £25. He made 18 percent. profit.

NORWAY OATS.—A variety of Oats under this name has been extensively advertised and extravagantly lauded. Considerable dissatisfaction has, however, been expressed among our neighbours in the States, in regard to the true merit of the variety, and the advertisers are charged with endeavouring to put a fictitious value on a very ordinary grain.

CRANBERRIES IN UPLAND.—A correspondent of *The Rural American* says:—"My own experience, and that of many others, is proof conclusive that they can be grown successfully and profitably on dry uplands. A clay or loamy soil, that is naturally moist, is the best. Upon such there is no doubt of successful culture. The land should be prepared by ploughing and harrowing thoroughly; rake level, and plant in rows 1½ feet apart, and one foot in the rows. Hoe the plants as long as convenient without disturbing them, after which weeding is all the cultivation necessary. The plants are set in spring until the 15th of May; in the fall, from the 1st of October until the ground freezes. On the pine-barren lands of Long Island they grow to perfection without the usual course of flooding, which so many consider necessary.

THIN SOWING.—The accompanying letter is from a practical farmer, who for many years has occupied a 700 acre farm in West Norfolk. My best field (one bushel seed) yielded 7 quarters 2 bushels per measured acre of fine white wheat (Club-headed Rough Chaff); sold for 60s. per quarter. My whole wheat crop (73 acres) will average 6 quarters per acre. The peck an acre yields 2 bushels per acre less than the adjoining 1 bushel, which was over 6 quarters of white wheat per acre. The peck an acre was put in as late as the 20th of November, which I do not recommend, but was determined to put it in same day as the rest.—*F. F. Mechi, Tiptree, October*, 1868.

The following is the letter of Mr. Mechi's correspondent:—"Oct. 13, 1868.—At the request of my brother, I write to inform you of the result of my experience in thin sowing for wheat last year. From what I saw on your farm, and what I read in your publication, I was induced to try 4 pecks per acre in four different fields. As you may suppose, my labourers laughed at the idea of it. I need not tell you that the ridges selected for the purpose were very visible all winter, even before you got near the field; looked very thin. As soon as the plant began to grow in the spring, it told us what it was going to do. I had a few friends to look at in the summer, and I think I may say that every one was in favour of the thin sowing, both as to straw and corn,—that is to say, 4 pecks against 7 pecks per acre, which is my usual quantity. I had that which grew in one field cut by itself; also the adjoining ridge, each containing 3 roods and 36 perches. The 4 pecks per acre gave me 13 coombs and 2 pecks. The 7 pecks per acre gave me 11 coombs 3 bushels and 3 pecks. I shall try it again this year."

THE MANUFACTURE OF MANURE.—Many of our farmers complain that they cannot make enough manure, and I never yet found a good one who has had too much. Now I think that if a farmer has hay enough there need be no difficulty in obtaining enough manure.

We see many of our barnyards constructed with escape holes in the wall along the lowest side of the yard, and from these holes a passer-by can scarcely fail to notice the very essence of manure escaping. The most valuable portion of the manure are those which are soluble, and of course these are taken up by the water in its passage through the manure and out of the yard.

Not long since I was arguing with one of my neighbours upon the propriety of stopping up these holes in his barnyard wall, when he met my objection with the assertion that he could not keep his yard clean enough to keep cattle in. A further investigation showed that his yard was not supplied with rain spouts, and consequently there was more water in the yard than fell there in direct descent. Yet this same farmer would complain that he "could not make manure enough," and this, too, when the most valuable portion of what he did make was escaping into the public road and into his neighbor's land.

If no more water finds its way into the yard than that which falls into it, there should be no difficulty in keeping it clean with the materials found on a common farm, such as coarse grass from the swamps and lowland, soda from the roadside, tussocks from the meadows, whose removal, while it benefits the manure pile, also improves the appearance of the meadow. If these are all used up, then it will be time enough to complain of the difficulty of not being able to make manure.—*Correspondence Germantown Telegraph.*

FEEDING OFF AFTERMATH.—It is a very common practice with farmers to reserve their meadow feed until very late in the fall, even so near to the winter that the frost has taken nearly all the succulent and nutritious properties out of it; but, by this mode of management, very little benefit is received, and in many cases great injury is done. Some advocate, however, that aftermath should not be fed off at all, but left as a shield and mulch for the roots; but from our own experience, we do not believe meadows are injured by being pastured in the fall, if it is done at the right time and by certain animals.

Meadows are injured by horses and sheep late in the season; for after the blades of the grass are killed, these animals will nip close to get sweet feed. They never should be allowed upon mowing land after the grass has stopped growing, not even in winter when the ground is frozen, for they will then gnaw to the very roots.

Horned cattle are really the only fit animals for the meadow, and they should be turned in while the feed is good, and removed as soon as the earth becomes moist enough for their feet to break the sod. In this way a profit may be derived on one hand, without any loss attending on the other, and sufficient protection left for roots. Timothy, and many other grasses which are common, take strong hold upon the soil, and are difficult to eradicate, and for this reason farmers abuse their fields.

Close feeding kills out here and there a little, and mosses, with other foreign matters, work in so gradually that it is for a few years hardly noticeable, but eventually the meadow has to be ploughed and restocked, because a paying yield of grass is not received.

Now, all this results from injudicious management; for we know of many meadows which yield heavy crops every year of the best quality of grass, that have never been ploughed or re-seeded since the land was cleared, nearly half a century ago. They have always been pastured in early fall, never fed close, and have occasionally received a top-dressing of barnyard manure.—*Ohio Farmer.*

Stock Department.

"Wharfdale Rose."

ANNEXED is an engraving of "Wharfdale Rose," a yearling heifer of great beauty and promise, imported by M. H. Cochrane, Esq., of Compton, Quebec, at the same time as "Duchess 97th," who lately figured in our columns. Both these animals were purchased of that noted breeder of Short-horns, Capt. Gunter, and by a comparison of their pedigrees it will be seen that they were sired by the same bull, and that, on the female side, the heifer now illustrated comes of no mean stock. "Wharfdale Rose" deservedly took the highest honours in her class, both at our own Provincial Exhibition and at the New York State Fair. One of the best judges of Short-horn cattle in the United States, Mr. Sanford Howard, writing to the *Country Gentleman*, says of "Wharfdale Rsoe,"—"This is a very promising animal generally,—well shaped and clean fleshed." The following is her

PEDIGREE.

"Wharfdale Rose," roan, caved September 27, 1867; bred by Capt. Gunter, Wetherby Grange, Yorkshire; got by "3rd Duke of Wharfdale," 21619, roan, bred by Capt. Gunter. Dam "Oxford Rose," red and white, sired by "6th Duke of Oxford," 12765, roan, bred by W. Tanqueray; gr. dam, "Moss Rose," got by "Ravensworth," 9532, roan, bred by W. Emerson; g.g. dam, "Graceful," got by "Freebooter," 7025, roan, bred by the Earl of Carlisle; g. g. g. dam, "Treasure," got by "Garthorpe," 2049, roan, bred by the Earl of Carlisle; g. g. g. g. dam, —— got by "Belshazzar," 1704, roan, bred by the Earl of Carlisle; g. g. g. g. g. dam, —— got by "Don Juan," 1923, roan, got by "Meggen's Bull," &c., &c.

"WHARFDALE ROSE,"
The Property of M. H. COCHRANE, Esq., Compton, Quebec.

The Compton Short-horns.

WE are glad to learn that some valuable additions have recently been made to the Compton herd of Short-horns, and that the importations made from England during the past summer are thriving on Canadian soil. The fine Booth heifer, "Star of Braithwaite," bred by Mr. Brewer, of Yorkshire, for which Mr. Cochrane paid 250 guineas, has lately dropped a fine roan bull calf, sired by Mr. Carr's bull, "Prince of the Realm," (13510); "Star of Braithwaite," by "Baron Booth," (21212); dam, "Star of Windsor," by "Windsor," (14013); gr. dam, "Vesper," by "King Arthur," (13110.) Our readers who are familiar with the English Short-horn Herd Book will know how to appreciate such a pedigree. The noble cow "Rosedale," after some weeks of knocking about on the cars, attending a number of exhibitions, and reaping a rich harvest of honours for herself and her owner, had been but a few days in her byre at Compton, when she gave birth to a rich roan heifer, sired by the "11th Duke of Thorndale." Both "Rosedale" and her calf are doing well. Mr. Simon Beattie, in a note received the other day, says, "Rosedale" is looking as gay and vigorous as a three-year-old heifer, and is as light on her feet as a fawn, thus giving proof of the strength and stamina of the Booth cattle. The "11th Duke" gives every promise of being a most valuable stock bull. Such of his progeny as have made their appearance at Compton, to the number of four—three heifers and one bull—are every way satisfactory as to quality, colour, and general characteristics. Mr. Cochrane has also bull calves from two other imported dams, both doing and promising well. One is from Mr. Harvey's "Walton on the Hill," got by "Lord Wild Eyes 5th;" dam "Wild Eyes 26th," by "Lad of Walton," (17787); gr. dam "Wild Eyes 24th," by "4th Duke of Oxford," (11387), &c. This calf was dropped a few days before leaving England, and is a fine, strong animal. The second is from Mr. Brewer's other heifer by Mr. Carr's "Prince of the Realm," (13510); dam "Pink Thornleaf," by "Baron Booth," (21212); gr. dam "Windsor Lavender Leaf," by "Windsor," (14013), &c., &c. This calf was born on board ship during the voyage from Liverpool to Canada, and is a perfect type of a Booth bull. We congratulate Mr. Cochrane on his good fortune thus far, and hope he may have a good run of it, with the choice animals he has obtained at so much cost and trouble.

"Gems from the Report of a Sheep Show."

UNDER the above heading, we find in one of our British exchanges the following "gems," culled from a report given by one of the Dublin dailies, of a Sheep Exhibition, lately held in that city. The name of the journal in which they first appeared is not given, but it is remarked that the subjoined extracts bear a strong resemblance to a report of a Royal Agricultural Show in the *Irish Times*, which descanted in a similarly lucid style on what were designated, "The eventful events of the past week." Evidently all the high falutin reporting is not done west of the Atlantic. Here are the "gems":—

"1. Root crop cultivation received such an impetus from such exhibitions that the models of the tiny roots then grown, contrast so diminutive with the creditable samples now being yearly staged within its walls, that the most superficial observer can at once perceive the *magnitude of the comparison.*

"2. The old Irish cow, whose tediousness to fatten or mature, and whose *usefulness*, in a pecuniary sense, to the owner was comparatively *worthless*, has been now *substituted by* those valuable animals of improved breeds which any casual observer cannot fail in discerning throughout the farmerics of the country.

"3. The subject of sheep breeding in Ireland has recently assumed a very *undivided state of opinion.*

"4. The most important feature in connection with the exhibition just being held is that *breeders* and admirers of sheep, of all shape and lineage, *have been placed in such proximity* that a rare opportunity is thus afforded to all, to see placed within the precincts of the agricultural hall all descriptions sheep of the different sorts.

"5. Every attempt to *improve* and perpetuate a *more improved* or judicious class of the ovine tribe was most *transparent* throughout the day. Graziers, exporters, importers, and the general farming community, seemed alike anxious to possess themselves of exchange, or hire out the *services* of their celebrated ram *sheepwalks* as suited the country."

Weaning Colts.

THE following communications have been received since the last article on the same subject went to press, and were not in time for the CANADA FARMER of Nov. 15th. They are based on the experience of practical men, and we give them to our readers that they may be enabled to compare notes. The first letter is as follows:—

"*To the Editor of* THE CANADA FARMER:

SIR,—In your paper of the 2nd instant, an inquirer, 'Gosford,' says 'if any of your correspondents practically acquainted with a good way of weaning colts would give the benefit of his experience through your columns he would confer a great favour.' Now, although not heretofore a correspondent, I will venture to give my experience. In the first place, I aim to take the common sense view of everything. I put the colt in a good pasture, and if I can do so, I give some company that it is acquainted with. But, at at any rate, I put the mare in the adjoining field; then they both feel as if they were not separated, and do not wear off any flesh by anxiety and running. And I take the mare in to the colt twice a day, for two or three days, and let it suck. After that, I let it suck once a day, for two or three days; then I let it suck every other day for two or three days, and if necessary to dry up the mare, I will perhaps let it suck once or twice in the course of the next week. By that course the colt will get weaned and the mare will be dried up, and neither of them lose flesh or be punished, which is both to my interest and their mutual comfort. If my experience is of any service in weaning colts, I will some time give my experience in breaking them, in which I also take the common sense view.

Wilton, 9th Nov. 1868. H. P."

Another subscriber writes:—

"In answer to the query respecting weaning colts, I beg to submit the following note. There are various ways in which they may be weaned. I think as good a way as any is to take them from the dam and tie them in a stable by themselves, with strong halters, and give them milk from the cow, which they will take the second or third time it is offered to them, if they get no water. You may give them milk and water as suits. Afterwards, give a few oats, and all the hay or green clover they can eat, when it can be got. At the end of seven or eight days, lead them out to the field at noon, and take them in at night (there must be good fences to keep them in). By doing so, you will soon have them to lead like old horses."

Canadian Natural History.

The Wolverene.

(*Gulo luscus.*)

THE settlement of the country has driven entirely away from many localities animals that were once common, and among the creatures that have almost disappeared from the neighbourhood of man is the Wolverene; though several times lately accounts have been published of its intrusion into dangerous proximity to human habitations. It is one of the larger members of the group of animals with which it is most closely allied, but, though extremely voracious, is by no means so formidable as it has been popularly supposed to be. It is a carnivorous animal, and feeds principally upon the smaller quadrupeds. Its general appearance is not unlike that of a small bear. Indeed, Linnæus and some other naturalists have placed it in the same family (*ursidæ*), but it is more properly classed with the weasel tribe (*mustelidæ*), of which the more common Canadian representatives have been noticed in recent numbers of the CANADA FARMER.

The Wolverene is an inhabitant of Northern America, Siberia, and a great part of Northern Europe, its geographical range extending from 42° to 75° north latitude. The ordinary length of the full-grown animal is about two feet, exclusive of the tail, which is about six inches long. The general colour of the fur is a brownish black; the nozzle is black as far as the eyebrows, and the space between the eyes of a brown hue. The body is stout and compactly made, with an arched back, and but little elevated from the ground, the legs being short. The head is small, round and broad, suddenly diminishing to the nose. The ears are nearly concealed by the fur. The eyes are small. The fur is loose and shaggy, of a brown tinge, deepening into black, especially toward the extremities, the paws being quite black, and the contrast between the jetty fur of the feet and the almost ivory whiteness of the claws is extremely curious. A paler tinge of colour, sometimes almost whitish, is observable on the chin and between the fore legs. A broad band of light chestnut extends along the flanks, meeting its fellow of the opposite side near the root of the tail. This appendage, like the feet, is black, and shaggy with long pendulous hairs. The toes, five in number, are distinct, with long, hooked claws. The paws are very large in proportion to the size of the animal, and it is supposed that this modification of structure is intended to enable the Wolverene to travel over the snow.

This animal is perfectly at home among the branches of trees, and although not apparently very active or alert, it will retain its hold and drop or leap from a considerable height with ease and security. It is much detested by trappers, as it follows them, and is in the habit of detaching the bait from the traps. By its keen scent it also frequently discovers the storehouses of provisions, or "caches," as they are called, which the provident hunters lay by, in order to fall back upon in case of bad success, and robs them of all animal food that it can find.

The Wolverene is not a very prolific animal, as it seldom produces more than two at a birth. The young have a uniform downy cream-coloured fur. The nest is frequently placed in the crevice of a rock, or in some secluded situation, and the young Wolverenes make their appearance in May.

Salmon Culture in Ontario.

IN the number of THE CANADA FARMER for March 1st, 1867, we gave an account of Mr. Wilmot's experiments in propagating salmon, and described at some length the usual method of conducting the process of artificial fish-hatching. It will no doubt be interesting to many of our readers to learn what progress has been made by Mr. Wilmot in his interesting and important enterprise. In bringing the matter once more under notice, it may be well to refer to the circumstances which led to the undertaking, and to describe again the changes that take place from the birth to the maturity of the fish.

There was a time, not many years ago, when the

tributary creeks and brooks of Lake Ontario and the St. Lawrence were the homes and native waters of countless shoals of salmon. From the Gulf of the St. Lawrence to the Falls of Niagara, these splendid fish were in rich abundance, yielding a full harvest to all who would gather it, and serving as a bounteous garner from which white man and Indian could draw with unsparing hand for summer food and winter store. As civilization, with its accompaniments, mills, steamers, and manufactories, spread, so the salmon decreased; and as the salmon decreased, so ill-advised and ignorant men became keener in their pursuit, destroying the fish at those times when they ascended the streams to breed. Year by year the shoals became smaller in size and fewer in number, until the time arrived when the once fertile streams became barren, and localities in which salmon could be found in thousands, produced perhaps half a dozen. An Act was passed by the Legislature for the better protection of the natural and artificial breeding of fish, but, though this is a very excellent measure, it is but one step in the right direction, for the harm has been done, the fish are gone, and the wealth that lay by our hand is departed, if not for ever, at least until some method is arranged for its reorganization and protection.

This is a matter, the importance of which cannot be too strongly insisted upon. It touches the interest of every town and village along the shores of the Lake, and appeals directly or indirectly to every commercial man throughout the Province. Every farmer and settler in the country is affected by it in one way or another, and the whole community suffer by its neglect, and benefit by its being cared for. Knowing that every ray of light thrown upon the subject tends to its welfare, and feeling that every effort of private enterprise redounds to the public good, we speak with the greatest pleasure of the admirable pisciculture establishment in our own neighbourhood, which we have just inspected.

Mr. Samuel Wilmot, of Bowmanville, on the shore of Lake Ontario, has watched the streams in his neighbourhood becoming gradually depopulated; and remembering them when they were, so to say, alive with salmon, he determined to make some effort to restore the fish to their former abundance, feeling confident that with the forbearance and assistance of his neighbours, a sensible improvement might be made in the course of a very few years. His first attempt was conducted on a very limited scale, but being satisfactory, he enlarged his operations with each successive season, until his labours are now beginning to show most gratifying results. In order that the reader may better understand what has been done, as well as what is doing, and see clearly the perfect method of Mr. Wilmot's salmon nursery arrangements, we will explain shortly the changes undergone by a salmon from the earliest period of his existence until that time when he becomes the terror of smaller fish, and the lawful object of man's chase. It is a well-established fact, that when their spawning time arrives, salmon will almost invariably seek those streams in which they themselves were hatched. Travelling up stream, the female salmon, accompanied by her mate, selects some shallow, gravelly bank on which to deposit her ova. In this both male and female fish dig furrows, using their tails for that purpose, and not their noses, as is very commonly believed. In these furrows the female lays her eggs in the ratio of about six hundred to every pound of her own weight, and over these the male fish deposits his melt or impregnating fluid. They then cover the furrows with the surrounding gravel, and leave the eggs to the effect of time and the running water. This occupation requires from three to twelve days, according to the condition of the salmon and the surrounding circumstances. The eggs, unless disturbed by the action of the stream, or the depredations of birds, or other enemies, remain for a length of time, varying from ninety to one hundred and thirty days, according to the temperature of the water, at the expiration of which period the young fish make their appearance. It must be remembered, however, that these eggs are the prey of innumerable foes; ducks, kingfishers and water lizards hunting them out and devouring them wherever they can be found. As the banks wherein they are laid are in the shallow parts of the water, and easily distinguishable by the bright appearance of the gravel, they are readily found, so that an almost incredibly small per centage of the eggs deposited by a shoal of salmon are ever brought to life. Added to this is the damage done by every

frechet, which disturbs the banks and destroys the ova. When the fish first emerges from the egg, he is called an alien, and is an ugly little creature, with a dispro portionately large head, and an unpleasant looking excrescence attached to him at the point where his gills should be. This is called the umbilical bag, and contains the food that sustains him until he has absorbed the whole thing, when he becomes marked with dark spots, and is then in his second stage, and is called a "Parr." For about twelve months he remains in the pools and shallows about the district of his birth-place, during which time he grows to the length of four or five inches, and changing into his third stage becomes a "Smolt." It is in this phase of life that he experiences the instinctive desire to reach the sea, and takes his departure, usually in the spring of the year, to return in the autumn as a grilse. So rapidly do salmon grow at this period of their existence, that a smolt weighing a few ounces, and measuring four and a half inches long, will return from the sea, after an absence of a few months only, weighing three or four pounds, and measuring about fifteen inches in length. In this stage he is capable of performing the functions of a male fish, although, strange to say, his mate is usually a female *salmon*, as few female *grilse* return to spawn. Migrating once more when the spawning season is over, the grilse returns a full-blown salmon. This is, of course, assuming that he escapes the thousand and one dangers that beset his way between the ocean and the stream, the stream and the ocean. Many salmon return to the shallows scarred with wounds inflicted by other fish, and marked with the salt water parasites, which cling to them in the ocean, but which are discarded on coming into fresh water.

Encouraged by the Legislative Act that made the taking of salmon from a breeding stream a punishable offence, Mr. Wilmot commenced his operations in the fall of 1866 by hatching a small quantity of salmon ova in his own kitchen. The fish from these he turned into the creek, and then gave his attention to utilizing the stream itself, in which, at this time, there were hardly six grilse to be seen. In the following year there were not more than a dozen; but in the present year no less than one hundred and fifty grilse have made their way into a portion of the water set aside for them; besides a number of others that remain outside in the body of the creek. These one hundred and fifty must therefore have been from the number turned into the stream in the fall of 1866, for those were now due according to all the calculations and deductions of pisciculturists, and up to the time of their appearance the stream had produced but a mere handful. This shows very conclusively what a little fostering care can do towards restocking our waters; for were these grilse the result of natural breeding, they would represent a deposit of between a quarter and half a million of eggs. This proportion may at first sight appear large, but is by no means exaggerated, and it can be easily comprehended by any one who considers the innumerable dangers that beset the young of the salmon. Not only are the eggs frequently lost by the effects of heavy rains and the depredations of birds, beasts and insects, but the young salmon has a distance to travel of over a thousand miles, during which time he is the prey of innumerable enemies, not the least formidable of which are the larger fish of his own kind. The existence of any creature must be precarious that lives in constant danger of being devoured by its own parents.

The plans which Mr. Wilmot has adopted for producing salmon and protecting the young fish, before they take their departure for the sea, are as perfect as they are simple, and are in beautiful harmony with the habits of the fish and the nature of the country. His nursery grounds are about a mile and a half from the lake, and are situated in a small stream, rapid and shallow in some parts, and deep and still in others. An artificial breakwater has been built at one point of the stream, and is so arranged that salmon cannot by any chance pass that spot. By the side of this is built a small house, which Mr. Wilmot calls his reception room, and is placed over a small stream, led from the main creek just *above* the breakwater, and passing through the reception room, empties itself in a small but rapid stream into the main creek, just *below* the breakwater. Hence, when salmon come up from the sea seeking for spots on which to deposit their ova, they are stopped by the breakwater, which they vainly attempt to pass. Failing to get farther at that point, they work round the spot until they meet the stream issuing from the house, when, with the natural instincts of their kind, they head up this rapid, and passing through an aperture that affords ingress, but not egress, are safe in the hands of their friend. The water from the auxiliary creek flows into the reception room through two trap doors at one end, and passes out through another at the opposite extremity. Thus the room can be flooded to the depth of four or five feet by shutting the trap door through which the water escapes, and can be shallowed to the depth of a few inches by opening this door and closing the one at the opposite end. Several planks laid partially across the room, edgeways in the water, divide the space into compartments, which enables the breeder to take any salmon out of the water without hunting it about the room or disturbing the other fish. The fish usually come into this reception room during the night, and when thus far up the creek are ready to spawn, and seeking fit places for that purpose. As each new fish arrives in the room, the ova is taken from it at once. The method of doing this is very simple, and does not in any way injure the parent fish. A man goes into the water, and having his hands covered with woollen gloves, to prevent the salmon slipping from his grasp, seizes the fish just above the tail. Two or three platforms cross the room at the height of two feet from the water, and on one of these an assistant stands ready to receive the fish. Wrapping a piece of flannel round it, to counteract its slippery tendencies, he places it between his knees and gently expresses the ova into a tin dish. The salmon is then marked either by a hole stamped through her tail, or by the adipose fin being cut, and turned into the water, having performed the operation for which she had travelled nearly six hundred miles. A male salmon is then caught, and the same process repeated. The melt that is obtained from him is left for a few minutes in the water, until the eggs are impregnated, when they are thoroughly washed and placed on the hatching beds.

Adjoining this is somewhat larger house—sixty feet by twenty—in which the eggs taken from the salmon in the reception room are hatched, and here by these simple means a million salmon can be produced in the year. For while the average per centage of fish raised from a bed of ova in a natural breeding ground is incredibly small, Mr. Wilmot calculates that he can hatch eighty per cent. of the eggs on his stands. It is clear, therefore, that by means of such fish farms as that of Mr. Wilmot, the former abundance of salmon might be restored in a comparatively-speaking short space of time. The artificial hatching of salmon ova in England and America has usually been performed on prepared gravel, and in boxes or in small artificial ponds; but Mr. Wilmot's method possesses a superiority over both these plans, inasmuch as it enables an attendant to remove any addled egg, dirt, or other injurious matter, without disturbing the eggs, at the same time that he can by a glance round the room tell precisely how many eggs are in process of incubation. Down the entire length of the hatching room a sloping stand is built, having a fall of about a foot between end and end; a small stream is led into this house over the upper end of the stand, by means of an underground pipe laid to the creek outside. The stream of water runs into a box at the extremity of the stand, and the overflow from this forms a gentle stream, which courses steadily and evenly down the length of the stand, and falling into another box at the lower end, is carried out into the creek. On this stand the eggs are placed in frames constructed in the form of a schoolboy's slate, but differing from that in having a double set of glass bars in the place of a flat piece of slate. These bars of glass are placed at alternate intervals, so that an egg rests on a bar of the lower set and between two bars of the upper: By this means it is kept immovable in its place, and a frame can be removed from its place to be washed or otherwise dealt with, and replaced without changing the position of a single egg. Each of these frames holds a single layer of one thousand eggs, but the stand is so arranged that three tiers of frames can be laid upon it, each of which will be thoroughly subjected to the action of the stream. Taking a bird's-eye view of the hatching-house, the eggs resemble a bed of pink peas ranged in successive lines, and in this way they remain until the expiration of about one hundred and twenty days, when each will be burst open by the little creature we have before described. As the alien is born, he drops down with the flow of the water, and is taken out of the box at the lower end, and removed to a small strait that leads from the reception house to the creek, at some little distance down. This was cut for a special purpose, which we will explain. At a point a few yards below the breakwater, Mr. Wilmot has commenced to build a dam, and from this point to cut an auxiliary canal to the right of the main creek, which is to carry the rush of water by this new channel into the creek again at some distance from the hatching-house. Between the point where this dam is built and that where the new channel rejoins the original stream, the creek will be quiet and undisturbed by other fish. Into this, then, the small strait runs, so that when young fish appear in the boxes they can be taken out and placed in quiet and secure waters, where they can remain until the time arrives for their seaward migration. Mr. Wilmot has already about two hundred and fifty thousand eggs on his hatching stand, though, as we have said, he has room for more than a million; of these he calculates he will hatch about two hundred thousand fish; and as some few salmon are still coming up, the number of eggs under process of incubation may be considerably increased before the winter sets in. At the same time that this is going on in the houses, the salmon outside in the stream who have not come into the reception room are depositing their spawn in the various gravel beds along the course of the creek, protected from molestation by Mr. Wilmot's jealous care, and unable, because of the breakwater, to get into dangerous localities.

Here, then, is one fish-breeding nursery established by private enterprise, and already laying the foundation of a future supply of salmon. The proprietor of this, with a public spirit worthy of imitation, gives the produce of his labours to the world, for it will be remembered that at the time the fish come to him they are unfit for food, besides being protected by law. Mr. Wilmot has already commenced preparations for further enlarging his breeding ponds; and as year after year goes by, the numbers of salmon will indefinitely multiply, until they of necessity must seek other places in which to breed, and so extend the good work that has been commenced. It is a most interesting occupation, and a most praiseworthy undertaking, and may be beneficially imitated by others who have a little spare time at their disposal, and who are in the vicinity of any stream, however small, that discharges itself into the Lake or the St Lawrence.

By the means of a few such establishments, the former wealth of salmon may be restored, the lake again stocked, and one of the most valuable products of our country be once more within the reach of all.

Moles—Field Mice.

A CORRESPONDENT at Gloucester wishes to know, through the *Plowman*, the best method of ridding his farm of moles. The *Plowman* replies:—

What he wishes to exterminate the moles on his place for we cannot understand. These little animals are entirely insectivorous, and the amount of benefit they do is very great. Probably our Gloucester correspondent has confounded with the moles those little animals called Shrew mice, or field mice. They somewhat resemble in form the short-tailed, thick bodied moles, but are herbivorous in their food, and do great damage to the grain crops through the country. The moles may be distinguished by their very smooth, glossy fur, their long pointed heads (one species, the star-nosed mole, having a fringe at the snout), and their diminutive, almost invisible eyes.

A good trap for catching all small vermin of the farm is made as follows: Dig in the earth, in the orchards, and gardens, at the beginning of cold weather, short trenches four feet wide at the bottom, and three feet wide at the top, and about four feet deep; the ends inclined at the same angle as the sides. The earth walls of these trenches, after becoming frozen, are impassable to mice that have fallen in. We have heard of great numbers being taken in these traps, and altogether they are the most effectual we know.

BIRDS AND THEIR USES.—Baron Von Tschudi, the well-known Swiss naturalist says:—"Without birds successful agriculture is impossible. They annihilate in a few months a greater number of destructive insects than human hands can accomplish in the same number of years. Amongst the most useful birds for this purpose may be classed the swallow, wren, robin-redbreast, sparrow and finch." Tschudi tested a titmouse upon rose bushes of his neighbour, and rid the same in a few hours of innumerable lice. A robin-readbreast killed in the neighborhood 800 flies in an hour. A pair of night swallows destroyed in fifteen minutes an immense swarm of gnats. A pair of wrens flew thirty-six times in an hour with insects in their bills to their nests. He considers the sparrow very important; a pair of them in a single day carry 300 worms or caterpillars to their nests—certainly a good compensation for the few cherries which they pluck from the trees. The generality of small birds carry to their young ones, during the feeding period, nothing but insects, worms, snails, spiders, &c. Sufficient interest should be manifested by all to prevent the discharge of fire arms in the vicinity of orchards, vineyards and flower gardens, as thereby the useful birds become frightened.

Veterinary Department.

Open Synoval Cavities.

THE following is the continuation of the article on this subject commenced in our issue of Oct., 15:

"Anatomy is, under the circumstances, a fair guide. Where numerous structures are involved, a well grounded learning is requisite for accurate judgment; but, as regards the knee of the horse, the spot whence the synovial discharge issues is of all importance. The incision must either be very deep and gaping, all subjacent structures being divided, before the knee-joint can be exposed, or else the wound must affect a very circumscribed place. Each of the tendons, when crossing the joint, is embraced in a synovial sheath. From such information, it will instantly be seen how far more likely a sheath is to be lacerated than the joint is to be punctured.

The single point where the joint could be entered, without severing tendon, lies rather on one side than directly in the centre. The vulnerable spot is, therefore, not exposed to the full force of the blow. To lay bare the joint by an ordinary fall, several parts must be divided. Rarely is an accident witnessed of so fearful an extent. Generally, that which is spoken of as open joint proves to be no more than punctured sheath; the presence of synovia being commonly accepted as the proof. But when the joint is really laid open, the immense flow of synovia—so many sheaths being severed—should at once prove the fact.

The probe must next be used. In the first instance, it should be employed to ascertain whether the fall has left any purse or sac at the inferior part of the joint. All which was enforced respecting the use of a metalic wire to a raw wound must here be observed. The probe had better be altogether discarded than employed with the smallest approach to rudeness.

The suspected sac having been discovered, a large spatula is placed below the knee. A knife with a keen point, but with the edge only sharpened for one-third of its length, is to be used. Upon the cutting point of the knife a piece of beeswax is firmly moulded. The wax answers the purpose of a temporary probe; the blade thus guarded, is cautiously inserted beneath the loose flap of skin. When the bottom of the pouch is reached, a certain amount of resistance will be encountered; through this the knife is driven. The force cuts in twain the wax, and pushes through the integument the blade, which the spatula guides from the leg. This operation should be performed quickly; the hand should simply be carried downward, and then brought upward, when all is concluded; care, however, being taken that the withdrawal of the knife does not injure any part save those it was designed to cut.

Should the horse be nervous, it is advisable to blindfold the animal, and order the groom to hold up the sound leg; the creature can then only rear. When thus disabled, that movement is rendered difficult, and it is proportionably slow. The operation, if properly performed, should be over before action can be prepared for; and by the knife a considerable incision is made in the bottom of the sac, through which all grit or dirt can, with the pus, readily pass.

The examination concludes with a second resort to the probe. The instrument is in surgery of great use; but, as it is commonly employed, reason may doubt whether injured life has been much benefited by its invention. It generally is roked and poked about as though the person holding it was determined, at all hazards, to ascertain the length, breadth, and every irregularity of the wound he is asked to cure; much harm is thereby done. Delicate attachments which, if not interfered with, might induce speedy reunion, are thus broken down, and the injury aggravated; while the operator thinks he ought to know all about the lesion he is to treat, and supposes that he can possibly do no harm with the instrument which the best schools order to be employed.

A good surgeon has no curiosity to gratify; all he desires to know is so much as will enable him to benefit the patient placed under his care. Therefore, never abuse the probe in cases of open synovial cavities. Imagine the distance the bones are from the surface, and, if the probe can enter a very little beyond that distance, such a fact demonstrates the cavity to be exposed. When a horse is before you with synovia running from a wound upon the knee, have the leg lightly flexed; look for the most free space, and into that insert the probe. The bones of the knee-joint are directly under the skin, and when no opposition is encountered for three-quarters of an inch, be certain the joint is exposed.

Most of the cases narrated as opened joints were simple punctures into synovial sheaths; as such, they were sufficiently serious; but not of so important a character as is assumed for them. Synovia is placed between the ends of bones, its use being to prevent the friction which otherwise would be occasioned by the movement of one hard body upon another. Being confined in a circumscribed sac, and incapable of much compression, the liquid performs all the uses which could appertain to the most solid substance. When the fluid which, from its thick appearance and mucuous feel, was formerly termed "*joint oil*," has escaped, the bones grate against each other; inflammation ensues; all neighbouring parts sympathise, and the constitution suffers from intense irritation.

Something of this kind happens when a synovial sheath is punctured. The tendon comes in contact with its investing synovial membrane; but there are reasons why that circumstance is not so serious as when the lubricating fluid is released from the cavity of a joint. Tendons support no weight, and their motion is with the sick almost optional. The bones are the pillars on which the body rests; even while the frame is prostrated, a certain degree of pressure is upon them; for that reason, and also because tendon is more highly organized than cartilage, the first mentioned substance is endowed with the greater renovating energy. An open joint is consequently far more serious than a punctured sheath.

Notwithstanding the serious nature of these accidents, when wrongly treated, few injuries yield more kindly to proper measures than do open joints. However, should the ordinary treatment of caustics and bandages be adopted, the entire limb, before the expiration of a week, will be hot, hard, and tense. The health of the animal will be seriously affected by the continued irritation, and the body will rapidly become emaciated. The foot of the limb will, with evident difficulty, be held from the ground. Should not death interpose (the animal being unable to lie down, and the entire weight being cast upon the sound limb), the foot attached to the healthy member frequently becomes affected with the worse form of incurable laminitis.

Even should no such misfortune as laminitis occur, the after deformity and blemish renders the horse almost worthless. The bones sympathise in the general disease, and a large osseous deposit is engendered to mark the surgical inapitude. When bony growth does not follow, the parts lying immediately over the knee thicken; the skin sloughs, and the integument never being restored, a full knee with a lasting blemish is the consequence.—*Turf, Field and Farm.*

The Dairy.

Feeding Milch Cows.

To the Editor of THE CANADA FARMER:

SIR,—Permit me to tell my experience in feeding milch cows, as I have been a constant reader of the CANADA FARMER since the first of January, and have seen many valuable articles on that and other agricultural subjects. I keep a small dairy of twenty-six cows, and have sent my milk to the factory for the last three seasons. Last June I sowed one acre of corn in drills, eighteen inches apart, and commenced cutting and feeding daily on the last of July. When the rain came on in September, I allowed my cows grass afresh, and I omitted feeding the corn four days, and the result was the milk diminished fifty-two pounds per day. I again commenced feeding them with corn, and in four days they gave their usual quantity of milk. Their milk more than doubly paid for the corn consumed. This is the first I have ever written for the CANADA FARMER. I have derived great benefit from reading its pages. You will hear from me again.

East Durham, P. Q. LYMAN CALL,

AMERICAN DAIRYMEN IN SWITZERLAND.—American enterprise appears to be looking to other continents for new spheres of activity. A company of Americans has located a milk-condensing establishment at Cham, by the lake of Zug, in Switzerland, intended to contribute to English consumption particularly. George H. Page, of Dixon, Illinois, is superintendent of the "Anglo-Swiss Condensed Milk Company." Milk from the Alpine region is celebrated for its richness and flavour. About 400 gallons daily is received from the peasants of the neighbourhood, twelve months, as reported by Baron Liebig, has been churned into excellent butter.

DAIRYING IN THE WEST.—In a report of a recent tour in Wisconsin and Illinois, Mr. X. A. Willard refers, among other interesting particulars, to the progress of factory cheese making in Illinois. He says:—

"One thing is certain, the west has improved in the manufacture of dairy products much more rapidly than at the east. They have the advantage of not being wedded to old notions, but start at once from that which is considered the best practice of our best dairymen, and they spare no pains to introduce improvements whenever a chance for such is offered.

It is for this reason that we think dairying will be a success at the west, wherever the lands are adapted to grazing. In the vicinity of Dunton cheese manufacturers have been secured from New York. The Misses Dwyer, of Herkimer county, are managing two factories, and are making an excellent quality of cheese. Mr. Hawks, the manager of the Dunton factory, is from Oswego county, N. Y., and is making a nice dairy. Mr. Danton drove us over to Gen. Cameron's factory, which is located across the prairie from Dunton, and on the river. Here we found the cheese quite uniform, and of clean, sweet flavour, and so far as we tested, free from that peculiar rankness which shippers complain of in western cheese, and which they say comes from Western grasses and water. We have no doubt the system of cooling and deodorising the milk at the farm, before it is put into the cans to be carted to the factory, will be put in practice generally at the West, and should this system prevail, and New York dairymen continue to cart their milk as at present, without the cooling and deodorising process, then New York must look well to her laurels, for Western cheese will have a reputation for fine flavor which it does not now always obtain."

THE CALVES.—There is no part of the farm stock more liable to be neglected in fall than the calves which have been raised during the summer. They are often left out late in the season, without shelter, to pick at the frozen grass, and by the time cold weather sets in, are reduced in flesh and cannot be wintered without extra nursing, and even then one or more are often lost before the time for turning to grass.

Calves should enter upon cold weather in good condition and with vigorous health. Shelter, and an abundance of nutritious food, should be provided so soon as grass becomes frost-bitten and poor, and cold storms of sleet and rain begin to be frequent. They demand the finest and best hay grown on the farm, and should have in addition a little oil meal, bran or oats. Roots will be found an excellent food for calves during the winter, in addition to the oil meal or bran above mentioned. Some prefer oats, say a pint or a little more per day to each animal. We have seen calves wintered through in fine condition upon hay and oats as above, but we prefer a mixture of oil meal and bran, and if it can be had, a daily feed of turnips or carrots. Calves that are well cared for, that have warm shelter, and that get a sufficiency of nutritious food, not over fed, continue their growth during the winter, and will usually come in milk when two years old, which is a matter of considerable importance to the dairyman. In our experience in raising stock we find by far the most important period to give close attention to the animal is during its first year. Neglect during that time is almost always attended with loss. A poor runty calf, poorly wintered, cannot be expected to be in milk the next year, and at three years old is no better for the pail than the two years old that has had generous treatment and care from its birth—yet the former has cost considerably more than the latter. Many farmers make no estimate of the cost of raising stock, and hence do not properly appreciate the difference between heifers coming in milk when two and three years old. Every animal raised on the farm should be charged with every item of its expense until it begins to pay the farmer back either in milk or beef. By keeping a strict account with stock we are enabled to see at a glance whether there is gain or loss in the business of stock raising. If such accounts were more generally kept, we apprehend more attention would be given to calves in pushing them forward, so that a full and early developement of the animal be secured. Some object to putting calves in stanchions, preferring to let them run loose in the stable. We have never seen any ill effect from stanchioning calves, but, on the contrary, believe there are many advantages from this mode of management.

Less room is occupied when they are thus confined, and they with their stable are kept cleaner than when allowed to run loose. They are more easily fed, especially when any extra food is given, and each one gets its share and is not driven about by master or stronger animals. By giving them a run in the yard every day they get sufficient excercise, while the early breaking to the stanchion, and the handling daily, renders them more docile and more easily managed as they grow older and come in milk.—*Utica Weekly Herald.*

Entomology.

Apple-tree Borers.

In a late number of THE CANADA FARMER—that for Nov. 2, 1868—we published Mr. D. W. Beadle's Prize Essay on "The Apple and its Cultivation," in which the writer gives an excellent account of a borer that affects the apple, its natural history, and the best modes of counteracting its ravages. The insect that he describes is called the Two-striped Borer (*Saperda bivittata*, Say; *candida*, Fab.) from the two chalky-white stripes that run the whole length of the body of the insect, as seen in Fig. 1. The grub that does the mischief is represented in Fig. 2. It belongs to the long-horned family of beetles (*Cerambycidæ*), which includes the majority of our wood-boring insects. It is found in many of the United States, in Lower Canada, and in the Niagara District of this Province; but we have never seen it on the north side of Lake Ontario, nor has it been taken in the neighbourhood of London, Ont. This pleasant immunity, however,—which, alas! may be of no long continuance—is counterbalanced by another Borer of equally destructive habits, to which we now beg to direct the attention of our readers.

Our Borer, like the other, is the larva of a beetle, but of a totally different family; the former has very long antennæ, this one has almost none; the grub

of the former is cylindrical (Fig. 2), that of the latter is flattened, and with the fore-part of the body twice as broad as the rest (Fig. 4.) It is called the Buprestis Borer (*Chrysobothris femorata*, Fab.), from the family of beetles (*Buprestidæ*) to which it belongs. The parent insect is represented in Fig. 3. If the reader will bear these illustrations in mind he will have no difficulty in telling which borer it is that affects his trees, should he be so unfortunate as to be troubled with one or other of the pests, and will know what remedies to apply.

The natural history of the Buprestis Borer may be briefly told as follows:—The egg is deposited by the female beetle in the chinks and crevices of the bark some time during the early part of summer; from this the young grub soon hatches and works his way into the soft sap-wood immediately beneath; here he eats away while the hole inside becomes larger and larger, and he increases in size himself, gradually working his way upwards until he becomes pretty well grown, when he bores into the solid heart of the wood and forms a flattish burrow, corresponding to his own flat form. Some say that this borer never leaves the sap-wood to go into the harder interior, but we have before us a portion of the trunk of a young apple-tree, out of the very heart of which we have cut several of these borers, while others were eating away nearer the surface. When several attack the same tree, their burrows of course approach each other, and sometimes come so near meeting as practically to girdle the tree and cause its speedy death; in any case they very much injure its vitality and bring on decay. We know, indeed, of two young orchards where more than half the trees have been greatly injured by this insect, while some were killed outright; and we have heard of a number of others similarly affected. In the spring of the year, the grub assumes its pupa, or quiescent, state, and comes out as a perfect beetle in the end of June or during July, when it may be found basking on the tree-trunks in the hot sunshine. It is very lively when danger threatens, and will take wing in an instant if an attempt is made to catch it. Its blackish-brown colour above so much resembles the bark of the tree, that it would easily escape the notice of ordinary observers; but beneath it is of a beautifully burnished dark copper colour, looking as if made of metal, and beneath the wing-covers it is bluish-green. The Two-striped Borer attacks the trees as a rule only near the root, though occasionally at the crotch above; the Buprestis Borer is not particular as to his locality, but attacks the whole trunk, and sometimes even the limbs; they both prefer young trees, probably because the bark is thinner and more easily penetrated by the young grub.

The presence of the grub in the tree may be detected by the discoloration of the bark, and its flattened, dried appearance. All such spots should be opened with a knife and the inmate ruthlessly butchered on the spot. In young orchards all the trees should be carefully examined two or three times a year, especially in early spring and fall, and all infected ones be promptly treated with an application of the knife. This, however, is a rather slow and troublesome process; it is much easier to keep off the insect than to kill him when he has effected a lodgement. One mode of doing this is to rub the trees over with common soap—soft-soap will do very well—early in June, just before the beetles begin to lay their eggs, and place also a lump of soap in the crotch of each tree, which will be washed down with the rain. Another mode, suggested by the Rev. R. Burnet of Hamilton, and which, we believe, is likely to prove efficacious—he has tried it himself with advantage—is to plaster over the trunk of the tree with a thick mixture of cow-dung and clay; this is said to prevent the egress of the insect, and cause it to die underneath. We should think that it would also prevent the eggs being laid on the tree, or at any rate be a hindrance to the newly hatched grub in his attempts to penetrate the bark. We have not had an opportunity of testing this method yet, but we propose doing so next season; we trust that some of our readers will also try it, and let us know the result of the experiment. It is only by repeated trials and experiments, by different people, in various localities, that reliable and satisfactory results can be obtained.

The Ravages of Insects.

THE following remarks by N. C. Meeker, from the proceedings of the American Institute Farmers' Club, New York *Tribune*, August 25, 1868, deserve attention:

We may say positively that destructive insects are increasing every year, and that they destroy as great an amount of food as is saved. To meet these scourges will require our best efforts. The science of Entomology, by which insects are classified and their nature studied, is becoming of national importance, and we are sure that without its help little will be done. The first step in every pursuit is analysis, by which we separate a whole into parts, upon each of which attention is to be fixed. Here progress commences. One of the first results in this study is to make distinction between insects which are useful and injurious, for unless this be done one will be as likely to destroy his friends as his enemies. At present this study is so far from being popular, that the greater part of educated men, so-called, are as ignorant as the unlettered. It is manifest that the elements of this science should be taught in our common schools, if it is to become of much use; for the transmission of learning directly from the learned few to the common people, without the intervention of a teacher, is impossible. In fitting teachers for their duties, a knowledge of this science should be included among their qualifications, as much as of arithmetic or grammar. At present, however, we have no colleges where studies of this practical nature are pursued, except incidentally; but when the agricultural universities shall be fairly established, we may expect that the need indicated will be fairly supplied.

Correspondence

A Strange Well.

To the Editor of THE CANADA FARMER:

SIR,—I visited the farm of Robert Henderson the other day, to witness a strange scene. On this land a well has been dug, which is some twenty-two feet deep. From the surface there is a stratum of red clay to the depth of about ten feet, and the rest is tough blue clay, with the exception of about six inches of fine sand, which is perfectly level, with a uniform depth all over the bottom, and out of the sand there is a continual stream of air rushing out in five different places on the East side of the well. Can you, or any of your subscribers, inform me of the cause?

There is no water coming into the well with the exception of some rain water. There was a depth of about eighteen inches some two weeks ago, which was taken out, and the air still kept rushing out with a noise similar to that of escaping steam. There is a depth of five feet of water in it now, which it slashes about with unceasing energy. What is strange, none of the water soaks away, and one side of the well is free from anything of the kind.

If you would answer in your next, you would oblige

WM. HENDERSON.

Blanchard, Nov. 16th, 1867.

NOTE BY ED. C. F.—The cause of the phenomena above described can only be matter of conjecture, in the absence of more complete information of geological surroundings. Air is confined in various cavities below the earth's surface, and not unfrequently subject to considerable pressure. In sinking shafts or wells, an outlet may be afforded, and the imprisoned air escapes with a rush, followed sometimes by water or other fluid. In the case under consideration, the dry stratum of sand has probably a connexion with some reservoir of compressed air, or it may have a sloping course, and somewhere approaches, and perhaps is open to, the surface. This extremity of the porous layer will be the first to receive the rainfall which, as it makes its way downwards, exerts considerable pressure on the air contained in the interstices of the sandy bed. Let alone, the water would gradually make its way downward, and the air escape by the extremity that admitted the water. But an opening having been made in a lower portion of this tube, so to speak, the pressed air finds vent there more readily than through the wet layer of sand above, and is forced out. If this be the case, the escape of air will in time cease, and water will flow into the well from the side whence air now springs. The pressure is evidently on one side only. We do not understand why surface rain water, that has entered the well by its mouth, should not sink through the sand on the side where there is no escape of air, and no pressure from behind. Perhaps it does soak away, but too slowly to have been observed. Perhaps other than surface water has entered. We should like to hear again from our correspondent, and learn the sequel of the curious and interesting case.

Reclaiming Swamp Land.

To the Editor of THE CANADA FARMER:

SIR,—I have a few acres of low land, once thickly covered with tall and handsome tamaracs, balsams, and an occasional cedar and pine. A fire recently swept over this beautiful thicket, burning the trees out by the roots and reducing all the old timber and vegetable mould to ashes. And now the question is, what is best to be done with this swamp?

The soil is *stiff blue clay*. There is no difficulty in drawing off the surface water by means of an open ditch, nor will there be any hardship in making an outlet in case of underdraining. But will it pay to bring such land under cultivation? What is the value of *blue clay* as a soil as compared with clays of other colors? Can this land be made to yield wheat or hay profitably? If so, what previous treatment should it receive?

If you will be so good as to answer these queries in the next issue of your valuable journal, you will very much oblige

AN AMATEUR.

Nov. 17th, 1868.

NOTE BY ED. C. F.—We cannot determine from the above description what is the value of the land in question; but would recommend that it be well drained by ditching in the first place, and sown in grass. It would then, probably, yield good hay. The yield of hay would give evidence of the richness or poverty of the soil, and show whether it would be worth while to incur the expense of underdraining. It would scarcely, however, be adapted for wheat.

Second Agricultural Society of the County of Rimouski, Quebec.

To the Editor of THE CANADA FARMER:

SIR,—As this communication relates to an effort that has been made for the improvement of Agriculture in a part of the Dominion, you may deem it not unworthy of a place in the CANADA FARMER.

Owing to the very large size of this county—the farthest east but one of the Province of Quebec—it was found that only one Agricultural Society was not sufficient for the wants of the inhabitants. Accordingly, a second was formed last March, the bounds of which extend from Métis to Cape Chat, a distance of about sixty miles. The following gentlemen are the present office-bearers:—President, Rev. J. O. Perron, Ste. Felicité; Vice-President, Mr. L. N. Blais, Matane; Sec.-Treas., Mr. A. Fournier, Matane; Directors, Messrs. Alex. Grant, F. Dionne, D. F. de St. Aubin, J. A. Genereux, Ant. Poirier, P. F. Leggat, N. Richard.

Of course, as the Society is of such a tender age, much cannot reasonably be expected from it. Something, however, has been done to accomplish the end for which it is formed. Last summer, prizes were offered for the best farms and best fields of wheat, barley, oats and potatoes. Messrs. Alex. Fraser and X. Imbeau were appointed judges. In the month of August, these gentlemen discharged their duties, and the following is the result:

For cultivated farm, of not less than eighty acres—1st, L. N. Blais, $6; 2nd, F. Dionne, $4.

For land first sowed in 1868—1st, Chas. Truchon, twenty-four acres, $4; 2nd, Rev. J. O. Perron, twenty acres, $2; ; 3rd, Moïse Côté, twelve acres, $1.

For wheat—1st, Oliv. Harrison, four acres, $4; 2nd, Oct. Lepage, six acres, $2; 3rd, Fr. Dionne, three acres, $1.

Barley—L. N. Blais, nine acres, $4.

Oats—1st, L. N. Blais, ten acres, $4; 2nd, Fr. Dionne, do, $2.

Potatoes—Fr. Dionne, —— acres, $4.

Of course the above is not much, but as the Scotch say, "bairns maun creep afore they gang." Arrangements were made for a ploughing match at Matane, in the fall, but for many reasons, into which I need not enter, it did not take place. Next year, the ploughing match is to be at Métis, thirty miles distant. It is to be hoped that the office-bearers will not be again disappointed. An exhibition is appointed to be held at Matane next year. There is to be one every year, alternately, at Matane and Métis.

It is to be hoped that the formation of this Society will prove in the highest degree beneficial to this part of Her Majesty's dominions. To use a very mild phrase, there is in it great room for improvement in agriculture. The views and practices of many of the inhabitants are far behind the age. However, by degrees they will come to see that improvements can be made in agriculture like every other art, and understand the value of agricultural societies. According as they do so the Society will be patronized, and will in turn do the more good.

T. F.

Métis, Q.

Italian Rye Grass.

To the Editor of THE CANADA FARMER:

SIR,—Can you or any of your numerous subscribers give me full information regarding the above grass, if profitable, for this country? What time should it be sown? How much would be an average crop per acre, on sandy land, of a fair tilth? How much should be sown per acre? What is the weight of the seed per bushel? Where can the seed be got, and at what price? How much better is it than Hungarian grass?

J. S. T.

Paris Road, Co. Brant.

ANS.—Italian Rye Grass, which has for some years been extensively used in England, has not hitherto, so far as we are aware, been introduced into this country, and until it has been fairly tested its suitableness for Canadian agriculture can only be a matter of conjecture. We understand it is one of the seeds that Professor Buckland contemplated importing in small quantity, for the purpose of experiment. The best time for sowing would probably be the beginning of May, using from one to two bushels of seed to the acre. The crops in England, on suitable soils, are often very heavy, yielding sometimes as much as three tons to the acre; and two crops are frequently taken in one year. But it requires a naturally rich soil to make any good return, and usually demands, for profitable culture, a large amount of manure. We do not know the standard weight of the seed. It would have to be imported from England, and could most likely be procured through any regular seedsman. It hardly admits of comparison with Hungarian grass, which is an annual. As already stated, actual experiment alone can determine its value in this country.

The Canada Farmer.

TORONTO, CANADA, DECEMBER 1. 1868.

Emigration.

MR. W. FRANK LYNN, a gentleman who takes great interest in the colonies, and has done much to diffuse information about them, and especially about Canada, among the various classes in England likely to emigrate, is at present in this country, endeavouring to obtain from our Government, press, and public men, some practical co-operation in the promotion of his views. His plan is, that the Government authorities here, through the municipal institutions of the country or otherwise, should organize a system, and employ agents in Canada in collecting returns at fortnightly or monthly intervals, respecting the number and class of workmen required, the wages usually paid, and the cost of provisions and living in each principal town and district, together with any other particulars that might be useful; and that this information should be forwarded, as soon as collected, to England, when he would undertake, by means of the press and the connection he possesses amongst the working classes, to have it regularly and properly published in a way that would reach every class of agricultural or artizan workmen.

He is of opinion that the publication of actual statistics, prices current, and tables of wages, would have more effect on working men and middle-class people than any other description of information. The cost of diffusing this kind of intelligence need not be much. Mr. Lynn thinks £500 or £600 a year would suffice; and if the effect of it should be, as he believes, to induce a better and more substantial class of emigrants, the country would soon more than get its outlay back again. He argues that the great hindrance to emigration hither is ignorance of the country, and states that there is not only great ignorance respecting Canada in England, but a large amount of strange and absurd misconception. One intelligent person remarked to him that he supposed tigers and serpents abounded about Toronto, and not a few with whom he has met objected to coming to Canada because they understood the people led a semi-savage life. It is not long since an agent of the British and Foreign Bible Society, addressing a Toronto audience, expressed his astonishment at finding the people so decently dressed; and if an educated man knew no better than to expect to find Canadians only half clad, we need not wonder if persons less well-informed should fall into similarly ludicrous mistakes. Mr. Lynn says it is exceedingly difficult to get people to believe statements respecting the colonies, and that they need to be in some way certified and backed up to gain credence. He tells us that the "Supplement to the CANADA FARMER," of which 20,000 copies were issued some four years since, for circulation in England, and which contained a vast amount of information about life in this country, was extensively regarded as an advertising puff in the interest of the Canada Company, and its testimony to a considerable extent discredited. Hence he urges the publication in English papers—not only in the leading organs of public opinion, but in respectable local journals—of facts and figures duly certified and accredited, so that they may be past dispute. If, however, there be, as it would seem, distrust and suspicion in regard to such information, and a prejudice against Canada in the minds of the people at home, it will be a matter of some difficulty to gain credence for statements in favour of this country, no matter through what channels they may be made. In this state of affairs we see the fruit of that depreciation of the colonies in general, and of Canada in particular, in which a certain class of British politicians have been prone to indulge, and perhaps, too, the influence of that want of patriotic enthusiasm with which we are ourselves to some extent chargeable. Americans at home and abroad always represent the United States as an earthly paradise, and its government as the best under the heavens. Modesty is all very well, but there are times and circumstances when it is needful to blow one's own trumpet a little. Judicious and energetic advertising helps a country as well as a business. If there are means of giving wide publicity to information about Canada in such form as would inspire confidence, by all means let it be done. An outlay of £500 or £600 a year, in doing this, would surely be money well invested, and could hardly fail to bring a profitable return in the transference of capital and population from Britain to our shores.

Our Dominion and Local Governments have this subject before them just now as one of the matters requiring attention. It is pretty manifest that our emigration agency system needs to be remodelled and made of more practical use. If we are to have agents in the old country at all, they should be practical, pushing men, acquainted with Canada, and in love with it, so as to plead its cause and advance its interests with a will. There is great danger of these foreign emigration agencies becoming mere sinecures. We have greater faith in measures of a more indirect character. Let our Government make Canada a good country to live in; let us establish a liberal free grant land system; let us pass a good homestead law; let us develope manufactures, and push on public improvements; let us be economical, thrifty, and prudent in our public expenditure, so as to keep taxation low; and no fear but population will flow to us. In these days of cheap postage, railroads, and electric telegraphs, people will soon get the news of such attractions. Only create an elysium, and multitudes will want to occupy it. "Where the carcase is, there will the eagles be gathered together."

Australian Agrioulture

We are indebted to the *Mark Lane Express* for the following interesting details respecting the present state of Agriculture in the Australian colonies. From an official copy of the agricultural statistics of Victoria for 1867, it appears that although some attention is still given to gold-mining, the exports of gold averaging about £6,000,003, agriculture and sheep-farming occupy now very prominent places in the industry of the colony. The export of wool now reaches 43,000,000 pounds, or more than double what it was at the time of the gold-seeking mania in 1853. The horses in the colony have quadrupled, there are double the number of sheep, and the cattle keep steady in number and quite adequate to the wants of the increased population; the population in the colony having donbled in twelve years.

The occupied land in the colony now amounts to 7,947,455 acres. The area occupied during the last ten years amounts to 5,840,930 acres, or more than three-fourths of the whole extent of land at present under occupation. The average size of holdings is 325 acres; that of the lots usually devoted to farming pursuits, 104 acres. The average area in occupation to each individual in the colony is 11.5 acres. In the last ten years, settlement has progressed in a faster ratio than the population.

The land enclosed amounts to 6,970,106 acres; of this 1,151,228 acres were fenced-in in 1867. The average area cultivated by each holder is 21.7 acres, of which freeholders contributed 70 per cent., and non-freeholders 30 per cent. The average area cultivated by farmers is 25½ acres, and by squatters 52½ acres. Farmers cultivated thirteen per cent. of the land they occupied, and squatters one per cent. of the alienated land attached to their runs. The extent cultivated by each occupier was the greatest in the year 1861, when the average was nearly thirty-one acres; since that period the tendency has been for settlement to outstrip cultivation, so far as the number of occupiers is concerned. Comparing the land in cultivation with the population of the colony, on an average, 100 acres are cultivated to every 109 individuals. Should cultivation advance in the same ratio, in relation to the increase of population, the next returns should show a proportion of not less than an acre under tillage to each head of the population. This proportion has already been exceeded both in New South Wales and South Australia. In the former colony, according to the latest returns, with a population of 431,000, the number of acres placed in cultivation amounted to 451,000, or a fraction over an acre per head; and in South Australia, during the last season, no less than 4.37 acres were placed under tillage to each individual in the community.

The numbers of live stock returned for Victoria are as follow: Horses, 121,381; cattle, 598,968, of which 140,414 were milch cows; 9,833,139 sheep, and 74,708 pigs. In ten years there has been a net increase of 73,549 in the number of horses, of 4,191,591 in the number of sheep, and of 22,481 in the number of pigs, but a falling off of 47,645 in the number of horned cattle. There are nearly fifteen head of stock of all descriptions to each man, woman, and child in the colony, consisting of about one-fifth of a horse, one head of cattle, fourteen sheep, and one-tenth of a pig; and about 111 head to the square mile, namely, one and a-half horses, nearly seven cattle, 102 sheep, and less than one pig.

In all the Australian colonies, including Tasmania and New Zealand, there are upwards of 600,000 horses, nearly 4,000,000 cattle, 38,500,000 sheep, and nearly 400,000 pigs, or more than 43,000,000 head of stock of all descriptions distributed throughout the group. New South Wales still heads the list in thirteen and three-quarter millions; Victoria stands second, 9,628,000; Queensland third, 8,264,000; and New Zealand fourth, 5,297,000. New South Wales and Queensland are still the great grazing colonies, as they own 2,700,000 head of cattle, and Victoria has under 600,000. As a sheep-breeding colony Victoria stands in an equally good position, surpassing Queensland by nearly 2,000,000, but outstripped by the older colony New South Wales, which owns more than eleven and a-half million sheep.

Passing now to an examination of the agricultural resources and production of Victoria, we find that the most important crop cultivated is wheat, which covered 208,588 acres, and produced 4,611,205 bush. The average produce per acre was—wheat 22.3 bush.; oats 30 bushels; barley 30.2 bushels, potatoes 2.7 tons; hay 1.7 tons. Four years ago vines only covered about 2,000 acres in Victoria, less than one-half the extent of ground now devoted to that culture. The vines numbered 8,231,022, more than half of which are in bearing. The grapes gathered last year amounted to 60,659 cwt., of which 43,395 cwt. were made into wine. The cultivation of tobacco is not increasing in Victoria, the acreage having declined from 623 acres in 1864 to 243 acres in 1867.

In all the Australian colonies, including Tasmania and New Zealand, we find that close upon 2,500,000 acres are under tillage. The greatest amount of cultivation (739,714 acres,) and of lands under vines, wheat, and miscellaneous tillage is in South Australia, as is also the largest extent under hay, if New Zealand (which only returns sown grasses and not hay) be excluded. Victoria can boast of the largest extent under oats and potatoes, and New South Wales the largest under cereals, exclusive of oats (chiefly maize,) and under tobacco. The whole acreage under wheat in all the colonies is nearly 1,000,000 acres, whilst vines now cover 13,519 acres. The acreable yield of wheat, oats, and hay is highest in Victoria; New South Wales gives the highest acreable yield of maize and other cereals; the average yield of potatoes and tobacco is highest in Tasmania; and most wine per acre is made in South Australia.

Returns of the machines and implements in use upon farms and stations in Victoria, and of their value, are given: from these, it appears that 165 steam-engines, of an aggregate power equal to that of 1,239 horses are used by farmers, and twenty-two steam-engines of 142 horse-power by squatters. The total value of the plant or machines and implements possessed by farmers amounted to £804,515, whilst that in the possession of squatters is only valued at £61,182. The crops reaped and sown by machinery covered 160,649 acres, of which all but 1,100 acres were upon farms. The number of persons employed upon farms is 42,211, and upon squatting stations 9,640.

There are 114 mills for grinding and dressing grain in the colony; 106 of these are worked by steam and eight by water-power. The amount of horse-power employed is 2,052. There are 355 pairs of stones at work, and the quantity of grain operated on was 4,000,000 bushels. The flour made during the year was 85,586 tons. The approximate value of the machinery and plant of the flour mills was £176,425. There are now 86 breweries in the colony, employing 648 hands and 471 horses. Nearly 9,000,000 gallons of beer are made, and in the manufacture of which 539,000 bushels of malt, 603,289 lbs of hops, and 6,290,000 lbs. of sugar are used.

In closing this summary, it may be added that as there are stated to be officially 43½ million acres of land available for agricultural or pastoral purposes in the colony, and as not eight million are yet occupied, there is ample room for expansion of population and stock, even at the rapid rate at which they have been shown to be increasing.

The "Prairie Farmer on" Reciprocity.

Several influential interests in the United States oppose the renewal of Reciprocity. Foremost among these is the wool interest. As its mouthpiece and advocate, the *Prairie Farmer* says in a recent issue:—

"Various mercantile, shipping and fishing interests are laboring with the powers at Washington for a renewal of the Reciprocity Treaty. There is at least one branch of farm industry that stands fundamentally opposed to this Treaty. This is the wool branch. Since the passage of the present tariff granting protection to the producers of combing wools, an immense amount of capital has been invested in the long-wooled breeds of sheep, such as are universally bred in the Dominion of Canada. This business and capital would suffer immensely if Canadian wools were brought into the States free of duty. It therefore becomes the duty of wool growers, through the Associations, to act in opposition to the effort to include wools in the Reciprocity Treaty. The manufacturers who joined hands with the wool growers in securing the present tariff on wool and woollens, at the meeting of their Association on the 7th of October, gave evidence of their good faith by passing resolutions opposing the movement, on the ground that the advocacy of renewal of the Treaty for the purpose of obtaining Canadian wools free, would be a violation of the spirit of the agreement with the wool growers, upon which the present tariff on wools and woollens was founded, and they say, 'that any advantage which might accrue to the worsted manufacturers from free introduction of combing wools under the proposed Treaty, would be more than counterbalanced by checking the impulse which it has already given to the growth of combing wools here. If the manufacturers oppose the treaty, how much more should wool growers?"

Our contemporary also speaks in terms of high approval of the resolutions against Reciprocity lately passed by the National Wool Growers' Association. All this looks very uncalled-for and absurd, in view of the fact that upwards of nine million pounds of wool have to be imported to meet the wants of American manufacturers, and the other fact, that some seventeen million dollars' worth of woollen goods are brought from abroad to supply the wants of citizens of the United States. When demand and supply are more equally balanced, there will be more consistency in high tariffs and anti-reciprocity.

The Rural New Yorker.—This ably-conducted and popular agricultural journal is to be enlarged to sixteen five-column pages, and otherwise improved on the 1st January next, when it commences its twetieth year and volume.

Editorial Acknowledgement. — Our contemporary, the *Country Gentleman*, in a recent issue, acknowledges the receipt of "a valuable and rare collection of hyacinth and other bulbs," from Mr. James Vick, of Rochester; half-a-bushel of "large and beautiful upland cranberries," from Mr. O. C. Cook, of South Milford, Mass., and "a box of the best honey we have seen in a long time, even better than that received from the same source last year, from Mr. Jasper Hagan, of Albany." Fortunate editor!

Proposed Legislation.—In addition to the Free Grant Question referred to in our last issue, there are other most important measures bearing on agriculture and the rural interests of the Province at present before the Ontario Legislature. In the mining interest very material changes are proposed, especially the abolishing of all royalties and taxes on minerals. A Homestead Exemption Law is also under discussion, which has for its object the exemption of homesteads, to the value of $1,000, from sale or execution for debt. These bills are not yet in a forward state, but by our next issue we hope to be able to report fully and favourably on these important matters. An Act will probably be passed to prevent the setting out of fires during the dry period of the year. Modifications are also contemplated in the sheep and dog law, and a few slight changes in the game law. To these and other kindred subjects that may come before Parliament we will refer again.

Agricultural Intelligence.

Trade with the United States.

EXPORTS FOR THE YEAR ENDING SEPTEMBER 30, 1868.

We subjoin a carefully prepared statement of the principal exports to the United States from this port for the present year, as compared with 1867. Statements of the exports from Port Hope and Cobourg are also given—the three ports being selected as having Consular agencies attached, and forming what has been mapped out by our American friends as "the District of Toronto." As far as it goes, the results shown are complete. It will be observed that this year there have been no exports to the United States in several articles which were largely sent there in 1867; and this is partly accounted for, as far as we can gather, not from any falling off in the exports generally, but from the fact that the traffic in question—with a good deal not here indicated—has sought Canadian rather than American routes of transit. Other markets have probably been found this year, in the varying course of trade, and it is to be hoped that they have all been better. This year

the total exports from Toronto to the States reached about $2,198,279, as against $1,929,588 for the same period of 1867—making an increase in the exports of 1868 of $268,691. This year from Port Hope the total value of the exports to the same quarter is set down at $1,627,169 02; and from Cobourg, $473,376—making the value of the total exports of the three ports foot up to $4,303,824.

Classifying the list of exports in hand, we find it to consist of the following articles:—In grain the total shipments from the three ports reached about 2,434,529 bushels, representing a value of $2,598,955, or within $447,013 of the total exports.

Barley, which, up to the present, has been in most active demand at this point, and which at one time touched the very handsome figure of $1 53 per bush.—constitutes the largest exports in the year's operations; and the figure it commanded this year, as compared with last, was such that though the quantity fell short 1,033,308 bushels, the value represented only shows a decline of $293,425. In 1867, 2,254,463 bushels left this port for the States. This year but 1,221,155 bushels, which are valued at $1,154,300.

Wheat, our next heaviest export, also shows a falling off in quantity and value this year. There were 498,178 bushels sent over, against 872,151 in 1867—showing a falling off in quantity of 373,973 bushels—representing the sum of $609,608.

Of cattle and horses it appears there were exported about 1876, valued at $117,096. Hogs to the number of 470 went the same road, and are set down as being worth nearly $2,000.

As far as Toronto is concerned, this year's business shows a falling off in the lumber sent to the States of 17,841,954 feet, worth in the neighbourhood of $173,000. The total lumber export for the three places, for which these calulations are made, reaches 96,448,107 feet, valued at $1,307,034. The decline in this export, as above noticed, was anticipated this spring, owing to a depression in the business on the other side, and the inability of dealers to hold over stocks till a more favorable period.

The total quantity of wool sent away is set down at 233,058 lbs. for the present year, as against 440,927 in 1867. This evidences a decline in quantity of 207,869 lbs., but the difference in the valuation for the two periods is only $1,722.

In 1867 there were exports in iron ore, rags, oats, hams, pelts, refined oil, safes and shrubbery—none of which appear to have travelled the same road this year. They represent a united value of nearly $93,000. The safes were ten in number, and found their way to our friends in the Lower Provinces, by way of Portland we suppose. Over $40,000 worth of the hams mentioned were sent through to England in bond.

☞ A National Exposition of wools and woollens at New York, in 1869, is proposed.

☞ A Maryland correspondent of the *Country Gentleman* raised 232 bushels of Harrison potatoes from seven and one-half bushels of seed.

☞ A process has recently been patented in England by which the bran of flour, after being separated, is ground into an impalpable powder, and then again mixed with the flour. In this way all the nutritious ingredients are preserved, while the fineness of the flour is not affected.

☞ The experiments made in Chenoa, Illinois, of drying corn by hot air, and thereby getting it to an early market, and obtaining the first prices of the season, are being repaid by a perfect success. Two dry-houses are already in operation, and another is about to be added.

The Berlin *Telegraph* states that upwards of twelve hundred bushels of potatoes, all the way from Riviere du Loup, Province of Quebec, have been sold in Berlin during the last three or four weeks, and readily commanded 70 cents a bushel.

New York State Fair.—The attendance at the N. Y. State Fair, the present year, was 68,000, and yet there were no race-course attractions. Think of this, all New England, and blush at the confession of your exhibition officials, that they cannot make a fair succeed without a horse-trot!

Cattle Disease in England.—A fatal disease has broken out amongst cattle in various parts of England, and has been attributed by many persons to the animal feeding on acorns, of which there has been an extraordinary abundance, while, owing to the long drought, the usual herbage has been extremely scarce. The true cause of the disease is still, however, involved in considerable obscurity.

Apples at the Nova Scotia Provincial Exhibition.

The *Nova Scotia Journal of Agriculture* for October, which has been only lately received, contains a report of the addresses delivered at the opening and closing of the recent exhibition, and a brief report of the apples shown. The latter account is furnished by G. A. S. Crichton, Vice-President of the Fruit Growers' Association. The following is the list of the apples exhibited:—

Doz.		Doz.	
20	Gravensteins.	1	Fall Pippin.
22	Ribston Pippins.	1	Red Astrachan.
24	Baldwins.	2	Gilliflower.
15	Yellow Belle Fleur.	2	Early Bough.
10	Rhode Island Greening.	3	Early Strawberry.
9	Nonpareil.	3	Golden Ball.
5	Blenheim Pippin.	1	Hubbardtown Nonsuch
8	King of the Pippins.	3	Keswick Codlin.
1	York and Lancaster.	2	Monson's Sweet.
15	Pomme de Neize.	2	Porter Apple.
5	Drap d'Or.	1	Yel. Newtown Pippin.
8	Gloria Mondi.	3	Swaar.
10	Emperor Alexander.	1	Sponge Apple.
2	Blue Fermaine.	1	Brabant Belle Fleur.
5	Pomme Grise.	1	Hughes Pl. pin.
5	American Golden Russet.	1	Dressed.
6	Spitzenberg.	1	Early Calkin Pippin.
12	Flushing do	1	Green Newtown do
3	Broadwell.	3	20 oz. Pippin.
12	Northern Spy.	1	Wolfville Beauty.
6	Pound-sweet.	1	Malden's Blush.
3	Sweet Russet.	1	Golden Sweet.
6	Colvert.	1	Bishop Bourne.
3	Canada Reinette.	1	Purple Gilliflower.
7	King of Tomkins Co.	5	Tallman Sweet.
4	Calkins Pippin (Late).	2	Strawberry Permaine.
2	Minister Apple.	2	Dutch Codlin.
3	Roxbury Russet.	2	Early River.
2	Golden Pippin.	2	York Greening.

In reference to the display from Ontario, the writer says: I weighed several varieties with the following results:—

		lbs.	oz.
6	Canada Gravensteins weighed	1	15½
6	N. Scotia do	2	1½
6	Canada Belle Fleur do	2	13
6	N. Scotia do	3	3½
12	Canada Belle Fleur do	3	3
12	N. Scotia do	3	0½
6	Gloria Mundi—called in the Canadian List:—White Spanish Reinette. }	2	13½
6	N. Scotia Gloria Mundi do	2	2½
1	do do	1	0

—circumference, 13 3-8.

Mr. Crichton, however, admits that the Canadian apples, though beaten in point of size by Nova Scotian specimens, were, some of them especially, of very superior flavour, and instances the Gravenstein, Fameuse and Pomme Grise as being in this respect remarkably excellent. We do not know how far our Canadian apples were duly represented.

The Commissioners have resolved to issue, as soon as possible a full Report of the Exhibition, including a revised edition of the Addresses delivered and a complete and carefully corrected List of Prizes and Extra Awards, Lists of Committees, Jurors, &c. The Report will be printed so as to form a convenient permanent Record of the Exhibition.

New System of Rose Culture.

Our foreign Exchanges describe a novel method of growing roses, which is coming into fashion, being found to secure the grand object, namely, great profusion of fine blooms. Its leading points are, *first*, pruning out all the old wood; *secondly*, shortening the new wood very little; and *thirdly*, pegging down the branches flat to the ground. The rose is permitted to bloom only on wood of the previous year's growth, and this young wood is pruned but little. This is quite contrary to all received rules of rose culture, theverthetes, the results are said to be extraordinary. The young shoots, pegged down to the earth, grow very vigorously, and produce abundance of roses at every eye. As fresh shoots put forth from the centre of the plant, those which have yielded flowers are cut away. While it is acknowledged that abundance of flowers can be thus obtained, we observe doubt expressed in some quarters whether as large roses can be got on this system as on the old plan of short and severe pruning. Among other advantages, it is thought the new mode will be favourable to the life of the rose tree, as close pruning is known to be rather exhaustive. The new system was first tried in England and France, two or three years ago, but has more recently been fully tested by a French florist, M. Jean Sisley, of Lyons, who has related his experiments in the *Revue Horticole*. Let our florists try the new method, and see how it answers in the New World. It may have an additional advantage here in securing to the prostrate plants a degree of winter protection, which, in our severe climate, may not come amiss.

The Resurrection Plant.

This is one of the latest curiosities in the plant line. We obtained one of Mr Vick, of Rochester, last spring, and it then resembled a bunch four or five inches in diameter of curled-up shoots of young cedar, with a small cluster of thread-like roots depending from the bottom. Placing it in a saucer of water, the bunch unrolled in a few hours, spreading out quite flat, and presented somewhat the appearance of a heavy patch of moss. In this state it remained two or three weeks. If the supply of moisture failed for a time, the plant gave warning by assuming its regular ball-like form. At the end of that time we transplanted it to the ground, and it looked fine and green under the influence of genial showers. But the weather grew dry, and the Resurrection Plant rolled itself into a ball and rolled away before the wind, the roots not having much grasp on the soil. It lay in the sun on the ground for a month, when we gave it to a friend who placed it in a saucer of water, and lo, it spread out its arms again and showed the green color of vegetable life. An exchange thus speaks of this singular plant:—

"These plants are brought from the southern parts of Mexico. During the rainy season they flourish luxuriantly, but when the dry weather and hot sun scorch the earth, they, too, dry and curl up, and blow about at the mercy of the wind. To all appearances they are as dead as the 'brown and sere leaf,' but as soon as the rain comes again, the roots suck up the water, the leaves unfold and assume a beautiful emerald green appearance. No matter where the plant may be, on a rock, a tree, or a house-top, wherever the winds have blown it, there it rests, and being a true temperance plant, it only asks for water, and at once burs into new life. Having purchased one of these tufts, and placed it in a soup plate filled with water, the reader will be surprised to see it gradually unfold and take on a deep green. The leaves are arranged spirally, and altogether the Resurrection Plant is the latest curiosity."—*Rural New Yorker.*

Protecting Bulbs.

There are many varieties of what are termed hardy bulbs, that will bloom much better than they usually do if protected in winter. A few inches of coarse litter, such as straw, hay, or corn-stalks, will answer the purpose very well; but when these are applied before the ground freezes they help to keep the frost out, consequently mice and ground moles find a very convenient harbor among the bulbs. We have paid pretty dearly for our experience in these matters, and wish that others should profit by our loss. We allow the ground to freeze two or three inches deep before applying the winter protection, and by so doing we do not furnish a retreat for vermin.

When the ground begins to freeze, field-mice look about for a warm location, and if a bed of choice bulbs offers such a place they are pretty sure to find it. It is not the freezing that usually injures half-tender bulbs, but the alternate freezing and thawing; consequently, when the ground once becomes frozen it is an object to keep it so; and there will be but little danger of the bulbs being injured.

We have found that many of the choice varieties of Hyacinths, Tulips, and Narcissus, are often injured in winter if left unprotected, therefore it is an object to cover them if it can be safely done. But where there are ground-mice or field-mice, great care must be given, or these pests will destroy as fast as one can plant.—*Whitlock's Horticultural Recorder.*

Propagating Grape Cuttings.

I make cuttings in the fall of perfectly ripened wood. Bury them six inches deep in any dry ground. In the spring, after the frost is out, spade a trench or trenches two feet wide, and six inches deep; cover the bottom with any cheap or refuse boards. Set up at each side a six inch board, and spread on the bottom some old hay or straw, half or two-thirds rotten, about one inch thick when packed, and make it very wet.

Fill the box with rich earth. Now, with the hand, open across one end a V shaped trench down to the old straw. Press the cuttings against the side of this trench, about two inches apart, with the upper bud at the surface of the ground. With the hand, take the dirt from the front side of this little trench and press it against the cuttings, leaving a similar trench, which fill with cuttings, and continue until the bed is filled. Then mulch with loose hay or straw two or three inches deep, and with a spout or rose sprinkler make the bed pretty moist.

Now the theory is this: the rotten straw in the bottom retains moisture. The boards prevent the surrounding earth from absorbing that moisture; the mulching prevents the moisture from evaporating, and therefore the cuttings remain moist.

My experience is this—95 per cent. of all my grape cuttings treated as above have grown.

There is another item or two in this process worthy of notice; when the plants are to be lifted for the vinery or for sale, first lift out the side boards, then with a shovel or fork, the plants are taken out with roots entire and uninjured, and also that they may be easily watered, and to some purpose in the dry time.—*Exchange.*

Chinese Primroses.

The double-flowered varieties of the Chinese Primrose form a group of considerable extent, as well as one of great beauty and interest. The old double rose-coloured and double white varieties of former days, attractive and useful as they were, are far surpassed by more modern productions. The law of progress has worked out the most cheering results: awitily and certainly have higher forms come forth from the work-shop of Nature to gladden the eyes of the patient worker in this direction. A few flowers, that represent the latest form of the fine varieties, produced by Messrs. Windebank & Kingsbury, of Southampton, were exposed at a recent meeting of the Floral Committee, and were especially remarkable as containing some very fine flaked varieties of considerable beauty. Singular to say, these fine double kinds are all raised from the seed obtained from single flowers. The double blooms do not produce seed as a rule; and even if they did yield seed, and it were to germinate, the plants so raised would simply produce single flowers. This is a curious fact, but Messrs. Windebank & Kingsbury, as well as others, have abundantly proved that it is so. Semi-double flowers will produce seed, but it is necessary that they should be fertilised with the pollen from the single blooms. They rarely, however, if ever, produce really double flowers when so fertilised, and the number of semi-double flowers are always in a minority—the remainder, and consequently larger part, proving single.

To obtain double varieties the raiser fertilises certain fine and striking single flowers with the pollen of other equally fine single blooms, and the desired result is obtained. This is Messrs. Windebank & Kingsbury's *modus operandi*, the exact details and mode of accomplishment are a professional secret they keep to themselves. That they have hit upon some method of fertilisation by which the production of double flowers is rendered certain is evident; and further than this, they at the same time secure a strong and vigorous constitution for the double kinds. Probably the act of fertilising, say a fine red flower, with the pollen of another flower of the same hue, equally fine in character, is the most likely cause of the production of double kinds of that same hue of color; and a similar process would be attended with a like result, if this hypothesis be a correct one, in the case of flowers of other hues of color.—*Gardiners' Chronicle.*

☞ A new grape, called the Golden Champion, is attracting much attention in Great Britain. It has been originated at Daikeith, Scotland. In constitution it is said to be equal to the Black Hamburg, and it sets freely under similar treatment; ripens earlier, and will keep in condition when ripe, as long as that favourite variety. The bunches are large and well shouldered; berries larger than any grape known. The flavor is peculiarly rich

☞ The apple crop in the valley of the Connecticut is now gathering, and proves much larger than anticipated. In Hampshire county the first quality is selling at 50c. a bushel in the orchards. In some of the valley towns the price is from $2 to $3 a barrel.

Ploughing Orchards.—The following experiment by Mr. H. Dayton, of Alden, Erie County, N.Y., is better than a column of theorizing. His orchard of 2½ acres, which had produced very little fruit for a number of years, and most of that wormy, was carefully ploughed less than two inches deep late last fall, and harrowed and cultivated two or three times in the early part of the present season. The result is, he has picked this fall over 450 barrels of fine smooth apples, bringing in about $1,600. The soil was a sandy gravel, and had been in grass about ten years.

New Dwarf Arbor Vitæ.—Mr. A. G. Burgess, of East New York, recently favoured us with the sight of a specimen of his new Dwarf Arbor Vitæ, which he has named Commodore Nutt. It is very dwarf, growing only four to six inches, and is very bushy, branching out close to and even below the ground, rooting at the base of the stems like box. It is perfectly hardy, and so dwarf and compact that it will undoubtedly become one of the most valuable plants for edging, taking the place of box, which is always more or less injured in our climate. We have no doubt it will prove to be a plant greatly wanted. It has only the long linear leaves of the Dwarf Arbor Vitæ, more like the Retinospora, which gives it the appearance of some species of heath.—*Hovey's Mag. of Hort.*

Robbing Gardens.—Not very long ago, the writer was told by an American gentleman, that, residing in the suburbs of a Western city, he had a garden which had cost him years of care and thought, and a great deal of money. The result was a rich reward in choice varieties of fruit and vegetables; but with the growth of the population round him, the robberies of his garden became so frequent as to convert what should have been the harmless and useful pleasure of his old age into a source of the most irritating annoyance. He had therefore to give his wife the option of remaining there where they were and cutting down all the fruit trees, or of selling the place and removing into town. Now against such lawless constraints as that put upon the most innocent, and even useful gratification of taste—upon a man's very mode of life indeed—it would almost seem as if one might justly defend himself, no matter at what risk to the wrong-doers, who, if they do not like the reception prepared for them, can easily and commodiously stay away. So largely injurious is this kind of theft, that we remember Mr. Greely in one of his essays on apple growing, while urging the planting of apple trees, confessed that one great reason of the diminished number of orchards in the New England States, was the frequent and wholesale spoliation which the proprietors had to suffer, so that really an industry of considerable importance was suppressed by sheer dishonesty.—*Montreal Herald.*

Twelve Thousand Acres of Roses.—Mr. Blunt, the British Vice-Consul at Adrianople, in his report to the foreign office this year, gives an account of the rose fields of Adrianople, extending over twelve or fourteen thousand acres, supplying the most important source of wealth in that district. The season for picking the roses is from the latter part of April to the early part of June; and at sunrise the plains look like a vast garden full of life and fragrance, with hundreds of Bulgarian boys and girls gathering the flowers into baskets and sacks, the air impregnated with the delicious scent, and the scene enlivened by songs, dances, and music. It is estimated that the rose districts of Adrianople produced in the season of 1866 about seven hundred thousand miscals of ottar of roses (the miscal being one and a half drachm), the price averaging a little more than three shillings sterling per miscal. If the spring is cool, and there are copious falls of dew and occasional showers, the crops prosper, and an abundant yield of oil is secured. The season in 1866 was so favourable that eight okes of petals (less than twenty-three pounds); and in some cases seven okes, yielded a miscal of oil. If the weather is very hot and dry, it takes double that quantity of petals. The culture of the rose does not entail much trouble and expense. The oil is extracted from the petals by the ordinary process of distillation.

Poultry Yard.

Dark Brahmapootras.

To the Editor of The Canada Farmer:

Sir,—In the Canada Farmer of Nov. 15, I perceive a letter signed H. M. Thomas, in which mention is made of a pair of Brahmapootra fowls, imported by Mrs. Varley, and of which an illustration appeared in your paper, Vol. 5, No. 1. There is also an advertisement from the same person, offering for sale "three pairs dark chickens from the first dark Brahmas imported by Mrs. Varley, Toronto." In reply to both letter and advertisement, I beg to state that the only chickens from those fowls were bred by us, and are in our possession. The history of the pair is simple enough, and is as follows:—

In April last, the hen being engaged in maternal duties, we mated the cock with an inferior hen of the same breed, for exhibition. They were purchased at what we supposed would have been a prohibitory price, and the cock eventually died on Dominion Day. The original hen we still have, and the offspring (which Mr. Thomas vainly imagines he has got for sale) are good representatives of their illustrious parents, some of the cockerels hatched in May weighing over nine pounds, and are magnificently feathered. It will afford us great pleasure to show our fowls to any who are lovers of poultry. We have also a trio from Mr. Boyle, of Wicklow, whose dark Brahmas won eight silver cups, besides many first prizes last year. These, with a cockerel and three pullets, from Mr. Singleton, of Leicestershire, a pair from Mr. Stephens, of Montreal, bred from his Wicklow birds, and a trio of Houdans, are our importations of this year.

In writing this letter, I do not wish by any means to detract from the merit of Mr. Thomas' birds; they may be first-rate, for all I know; but I must correct the statement that they are from "the first dark Brahmas imported by Mrs. Varley," as the only progeny of that pair are still in our own possession

W. VARLEY,
V.S., 1st class, 13th Hussars.

Nov. 19th, 1868.

Note by Ed. C. F.—We are authorised by Mr. Thomas to state that the advertisement referred to should have read "first *prize* dark Brahmas imported," &c., instead of "first dark Brahmas imported." The omission of the word was an inadvertence which he did not discover till he saw the advertisement in print.

Barn-Door Fowl.

The name "barn-door fowl" suggests in itself the mode in which a farmer expects his poultry to pick up a living—literally by eating the grain dropped from the threshing and various other farming operations, and the seeds and insects procured by scratching on the dung-hill, which, besides feeding, causes them to become public benefactors; for the very seeds they eat would, if returned to the land, propagate a rank crop of weeds.

The question now arises, what cross or crosses of pure-bred fowls will produce at once the largest, best-flavored, and healthiest chickens? The one I strongly recommend is that between the Game cock (to be chosen rather for its size and abundant plumage than for its warlike proclivities) and the Gray Dorking hen. It is generally admitted that the Game bird is good for the table; it is also a good sitter and an excellent mother, but it lacks size. This quality the Dorking gives, and the progeny of the two grow to great weight, frequently quite as large as the pure-bred Dorking itself. They lay and sit well, and the mixture of the Game blood gives a better flavor to the chickens. A further cross in the following year will be advantageously made with the Brahma Pootra fowl; and the third year it will be found wise to turn a few young Game cocks into the farm-yard, so that, by continually introducing fresh blood, is avoided that most pernicious habit of breeding in-and-in, to which I have previously alluded. There are many crosses from which good fowls may be obtained, but I do not think any equal to that I have described, viz: between the Game, the Gray Dorking and the Brahma Pootra.

Although for the purpose of obtaining eggs at a season when they are most expensive, it is a wise plan to save each year several pullets for laying, still the eggs to be placed under the sitting hen should be those laid by two-year-old birds, as they will be found not only more certain to contain a chicken, but the chicken will be stronger than any produced from the egg of a pullet. The number of eggs to be placed under a hen varies according to the size of the bird and the season of the year. My impression is, that too many are generally set, and the consequence becomes manifest in the weakliness of the chickens. In no case should there be more than thirteen eggs, however large the bird, and in most cases ten or eleven are quite sufficient; indeed, in very cold weather, nine eggs are enough for the largest bird to cover. The good effect of setting comparatively few eggs is observed in the strength exhibited by the chickens in escaping from the shell, and the fact that they are all hatched at the same time.—*S. M. Saunders, in Country Gentleman.*

The Dutchman's Hen, or Female Perversity.

"If she will, she will—you may depend on't;
And if she won't, she won't—and there's an end on't."

Once with an honest Dutchman walking,
About his troubles he was talking—
The most of which seemed to arise
From friends' and wife's perversities
When he took breath, his pipe to fill,
I ventured to suggest, that wit,
Was oft the cause of human ill;
That life was full of self-denials,
And every man had his own trials.
"'Tis not the will," he quick replied,
"But it's the won't by which I'm tried.
When people will, I'm always glad:
'Tis only when they won't I'm mad!
Contrary folks, like mine old hen,
Who laid a dozen eggs, and then,
Instead of sitting down to hatch,
Runs off into mine garden patch!
I goes and catches her and brings her,
And back on to her nest I flings her;
And then I snaps her on the head,
And tells her: 'Sit there, you old jade!'
But sit she won't, for all I say,
She's up again and runs away.
Then I was mad, as mad as fire,
But once again I thought I'd try her,
So after her I soon makes chase,
And brings her back to the old place,
And then I snaps her a great deal,
And does my best to make her feel
That she must do as she was bid;
But not a bit of it she did.
She was the most contrariest bird
Or which I ever saw or heard.
Before I'd turn my back again,
Was running off, that cursed hen.
Thinks I, I'm now a 'used up' man.
I must adopt some other plan.
I'll fix her now, for if I don't,
My will is conquered by her won't!
So then I goes and gets some blocks,
And with them makes a little box;
And takes some straw, the very best,
And makes the nicest kind of nest;
Then in the nest the eggs I place,
And feel a smile upon my face
As I thinks now at last I've got her,
When in the little box I've set her;
For to this little box I did
Consider I must have a lid,
So that she couldn't get away;
But in it, till she hatched must stay.
And then again, once more I chased her,
And catched, and in the box I placed her.
Again I snaps her on the head,
Until I fear she might be dead;
And then, when I had made her sit down,
Immediately I claps the lid on.
And now, thinks I, I've got her fast,
She'll have to do her work at last.
No longer shall I stand the brunt
Of this old hen's confounded won't!
So I goes in and tells mine folks,
And then I takes mine pipe and smokes,
And walks about and feels so good
That 'wouldn't' yields at length to 'would.'
And as so oft I'd snapped the hen,
I takes some 'schnapps' myself, and then
I thought I'd see how the old critter
Was getting on where I had set her;
The lid the box so nicely fits on
I gently raised—dunder and blitzen!
(Give me more schnapps, and fill the cup!)
There she was sitting—standing up!"

—*Knickerbocker Magazine.*

☞ During the late poultry exhibition in Chicago, sales were made of fowls to the amount of nearly or quite $1,000. Few fowls were sold at less than five dollars each, and a number of trios of chickens were sold at twenty-five dollars.

The Apiary.

Montreal Apicultural Society.

A Society has been formed in Montreal with the above name—the officers are Mr. G. Lomer, Montreal, President; Dr. Webber, Richmond, Q., and Mr. J. Valiquet, St. Hilaire, Q., Vice-Presidents; Mr. S. J. Lyman, Montreal, Secretary.

The objects of the association are to promote attention to bee-keeping. With this view they will hold exhibitions in connection with the horticultural society, at which prizes will be offered for the best constructed hives, wax, and all preparations of wax, honey and preparations of honey, essays on Bee-keeping, &c. Meetings will be held for discussion of subjects connected with bees.

Wintering Bees.

This was the subject of discussion at the first quarterly meeting of the Apicultural Association, held in the room of the Horticultural Society, Mechanics' Hall, on the evening of the 5th November. Mr. Valiquet, of St., Hilaire, V. P., in the chair, and Mr. S. J. Lyman, Secretary. The conversation was carried on by such experienced bee-keepers as Mr. Valiquet, Rev. Mr. Kabler, German minister, of Montreal, and Mr. Higgins, of Coto St. Paul. All agreed that wintering bees was a very important and difficult part of apiculture, and that it was only strong swarms that had any probability of wintering well; indeed that success in bee-keeping in all its departments was dependent on strong stocks, and that bee-keepers paid special attention to this point. Far better have one strong hive (*i. e.*, full of bees) than two weak ones.

For wintering a large number of hives, Mr. Higgins had made a bee-house, with double walls and charcoal between them; but the heat of so many hives together, notwithstanding good means of ventilation, was found to be so great in March, that the bees were all in commotion, and he had to put out the hives nearly a month earlier than he intended, but he did not find that they suffered much by the exposure.

Mr. Valiquet had found the following plan answer well:—He dug a ditch in dry ground, about two feet deep and three feet wide at the top, and as long as the number of hives required. Across this ditch he laid pieces of scantling, and on these he laid two ten-inch boards lengthwise, on which he placed his hives close to each other. Each hive projected a little over the board on each side, and he also opened the super holes for ventilation. He then covered them with boards, in the form of a roof, with chimneys every ten feet, and covered those boards with straw, banking the whole up with the earth taken out of the ditch. The bees had wintered as well, or he thought better in this way than in a cellar, and he had not been troubled by rats or mice, but it was thought that in some places the depredations of these vermin would be a great objection to this method.

Rev. Mr. Kabler thought that a cellar was the best place for wintering bees, and that they should be placed on tables or suspended to the wall, to prevent rats from getting at them. A dark closet would probably do equally well. It had been thought the cellar must be dry, but he believed that a damp cellar or root-house was equally good, though anything putrid or offensive would be injurious. It was, also, generally thought that the temperature should be near the freezing point, but the President of the Society, Mr. Lomer, who could not be at the meeting on account of indisposition, had wintered bees in a part of his cellar that was quite warm, on account of proximity to the furnace which heated his house, and they came out in spring in fine health. It was also generally thought that ventilation was necessary to bees in winter, but in Germany they were shut up close, and here, he believed, they might be treated in the same way. The great thing to avoid in wintering bees was light. The least streak of light would set them in motion, and they would not only consume more honey, but some would escape, if they could, and all that escaped in winter would be lost. If bees were kept cold they had to consume honey to generate heat, which was saved when they were kept comfortably warm. A hive might be safely wintered out-doors with a box or covering of straw over it, but it would require thirty pounds of honey; whereas, in a cellar that was not too cold, ten pounds would suffice. The door of the hive should be closed with wire gauze, and the bees should be disturbed as little as possible.

Mr. Higgins said when the confinement was prolonged there was great danger of the comb being destroyed by the excrements of the bees, and therefore the hives should be allowed to stand out in this climate until severe frost came in December, and be placed out again about the end of March.

A Fine Yield of Honey.—Silas Timmerman, Clockville, N. Y., writes the *Rural New Yorker* that N. N. Belsinger, of that place, received this season from thirty-six stocks of bees thirty-four new swarms and three thousand one hundred and fifty pounds of cap honey. The glass caps were five by six inches. The honey consisted of two thousand eight hundred and fifty pounds of clover, and three hundred of buckwheat. This is Mr. B.'s third season in the bee business, and his stocks are now nearly all Italians.

Good Yield of Honey.—At the recent autumn competition of the Inverness (N. B.) Farmer Society, premiums were offered for the best and second best samples of honey, in tops and hives. Only one sample was shown, but the quality was fine and well worthy of a prize. The honey was taken from a hive swarmed in June last, and weighed as follows:—1st top, 11 lbs.; 2nd top, 7 lbs.; oke, 11 lbs.; total, 29 lbs. The hive is left for a stock; and has of honey 35 lbs., giving a produce of 64 lbs. to the first swarm. The same stock cast a second swarm later in June, and in September the bees were removed from the hive, and put in with the first swarm kept for a stock. The hive contained 40 lbs. of honey, the produce for the season of one stock being therefore 104 lbs. No bees were killed; and the management was in accordance with an essay on bees published by Provost Mackenzie, of Eilcanach.

Poetry.

A River Lyric.

Under my window, day by day,
The beautiful river rolls away:
Rolls from far off woods of pine
Down to the glittering bay;
By frowning crag and fragrant vine,
Onward still to the foaming brine,
To the ocean's kingly sway.

Many a league in rippling glee
The young brook dances; bird and bee
And flowers that lean from the shadowy grass
Hark to its minstrelsy;
And cloud and star, as above they pass,
In its crystal bosom, as in a glass,
Their radiant beauty see.

But the brook hath heard a legend rare,
The winds have warbled it in the air,
Many an echoed voice hath told
Of a world more strangely fair,
Of a world of waters vast and old!
Oh, to reach those depths of pearl and gold,
Well may the brooklet dare!

Now swells the current, deep and wide,
O'er rock and chasm its strength is tried,
Till in broader channels, smooth and free,
The waves majestic glide;
And on they roll right royally,
Till they feel the heart-throb of the sea,
The ebbing and flowing tide.

Beautiful river, roll away!
Thy seaward current no charm can stay.
And thou, too, haste, O river of life!
Through shadows gathering grey;
Flow from meadows with beauty rife,
Down through channels of storm and strife,
To shores of endless day.

Blythe and gay in the early dawn
Life dances forth to meet the morn,
But fast, fast fade the dew and the balm
Of youth's enchantment born:
In this fuller tide, in this deeper calm,
Let me not utter one mournful psalm
Over the brightness gone.

For as day by day I look on thee,
Beautiful river, flowing free,
I feel the swifter rush of the stream
Which onward rolls with me.
And I gather, at times, thro' mist and dream,
An echoed murmur, a breath, a gleam
Of the everlasting sea!

[*Mark Lane Express.*

The Household.

Keeping Out the Cold.

To the Editor of THE CANADA FARMER:

The house we live in is very cold, caused chiefly, I think, by its standing on blocks one foot above the ground.

For the last three years I have been trying to persuade my father to bank it up, but he argues "that it is *impossible* for any cold to come up through a double floor," although water freezes if spilled on the floor even at this season of the year.

My father is a constant reader of your journal, and thinks whatever you advise is about right. Now, Sir, I have taken the liberty of thus trespassing, hoping that you will persuade father to bank up the house and keep us all from freezing this coming winter.

RURAL DISTRICT.

NOTE BY ED. C. F.—It will afford us great pleasure if any word of ours should make one household warm through the coming winter, and the point referred to by our correspondent is one about which we have no doubt. There are more reasons than we have space to give, why, under the circumstances mentioned, the house should be cold. In the first place, the exposed floor is an additional outer wall, always chilled, and keeping the interior cold. Again, it cannot or is not likely to be so tight that air will not come through, and of course the warmth of stoves, &c., causing heated air to ascend and escape by flues or other ventilators, will bring a rush of cold air from beneath A little practical experience may be still more convincing than any theory or philosophy, and we happen to know from personal trial the difference made in a house by leaving the space under the floor open, and closing it in. Our first winter in the climate of North America taught us many useful lessons, and this among the rest. We entered a new house just as winter set in; the dwelling was far from complete, and, among other imperfections, was not walled or banked up to the level of the floor. We shall never forget the experience of that season. Water spilled on the floor froze and remained solid for days together; if the table was washed even with warm water, the surface was instantly coated with a thin sheet of ice. The windows were imperviously crusted with congealed vapour, presenting, in sunlight, most beautiful frost pictures, which, however, we would gladly have exchanged for a little more warmth. In short, the freaks of Jack Frost were so extraordinary and novel as to be really entertaining. But we tired of them, and before next winter shut him out effectually by covering in the basement of the house. The difference must be tried to be realized. We trust our friend, the writer of the above, will have the pleasure of learning the difference this winter.

Desolation Farm-yard.

I never passed Mr. Parish's old place, when a child, without feeling depressed and gloomy. There were not two rods of fence left standing about the house; the old door-steps were broken in, the doors looked as if the first gust of wind would finish them off, a few lank pigs rooted about the front door, and I have an impression that a sorrowful-faced cow was "staked out" about the premises somewhere. We used to call the place "Desolation Farm-yard," and it well merited its name. The people were not drunkards who owned it; they were only "do-less." The poor wife and mother had little health, and I suppose such a shiftless husband had caused her to lose all heart and spirit. Indeed, I think they hardly realized the true condition of things—the changes in the once respectable place had come on so gradually.

I think Solomon must have had such a place in his mind when he penned the lines, "By much slothfulness the building decayeth, and through idleness of the hands the house droppeth through." This was exactly the case in "Desolation Farm-yard." A few handfuls of nails every year, a few days' work with the paint brush and the white-wash bucket, would have kept the place in decent repair, would have helped the family to maintain a respectable place among their neighbors, and would have prevented the children from growing up such wild little Arabs. Children reared in such a home never can maintain a decent self-respect, nor are they likely to be respected by others. No one would think of inviting the daughters out to a pic-nic or a sleighing party, unless some benevolent person did so out of charity. It would require a pretty brave young man to drive up to "that old house" and wait upon Miss Susan into the carriage.

So, too, young Peter Parish would be sure to "get the mitten" if he proposed to see a neighbor's daughter home from singing school. She could not stand the jests of her companions about "that old house," even if she had thought well enough of Peter. The shadow of Desolation Farm-yard would follow them all their lives, unless they wandered off to distant parts where it was never heard of. Even then the mould of its crumbling walls would cling to their hearts and characters forever.

It is a burning wrong to a child to give it such a home in its early years. An air of thrift and tidiness can go along with very deep poverty, and where it is found there is ever a claim to respectability which will not fail to be recognized. As a poor woman once said, "However poor persons may be, they can almost always afford to buy a peck of lime." A peck of lime, judiciously applied as white-wash, can work wonders on the raggedest home.—*Cor. Country Gentleman.*

Economical Vinegar.

In a new country, where the fruit is scarce, it becomes a matter of no small importance that all should be made the most of. We all like good, pure vinegar, and can be sure of it only when it is manufactured from apples. In the fall of the year, those who have apples are paring and drying them for winter use, which is a very commendable thing to do; and a more commendable thing still, is to save the parings and cores for vinegar, and the way to do it is this:—

When you have quite a quantity, put them in a boiler with water enough to cover them, and boil, or rather soak them, several hours. Then strain the juice by pouring it through a clean basket; pour into a cask where there has been vinegar, and leave it to make itself. If you have no such cask, add half a pint of molasses to each gallon of juice, put in a bit of brown paper, and set it where it will warm. A piece of "mother," or vinegar plant, added, will make the process more rapid.—*Western Rural.*

Steaming Potatoes.

THE secret of "steaming" potatoes is very little understood, and rarely carried into full effect, although it is indispensable to the nutritious development of the vegetable. The whole mystery consists in suffering the steam to escape, and at the same time keeping the potatoes hot.

When the cook throws off the water, under the jurisdiction of the cookery-book, what is she to do next? The steam rushes out, and she places the vessel opposite the fire; but, fearful that the potatoes may cool in the meanwhile, she puts on the cover. Thus she undoes one process by the other; for the steam no sooner escapes from the potatoes, than by being confined by the lid, it condenses rapidly, and falls back in water upon the vegetables.

And thus, through the ignorance and obstinacy of our cooks, we are perpetually served with what are familiarly called wet potatoes—a sort of vague excuse which helps to throw the fault against the season, or the gardener, or anything, or anybody, rather than the real culprit. The Irish peasant woman, wholly ignorant of science, but with instinctive sagacity, gets rid of the difficulty by the simplest process imaginable.

Placing the vessel, without the cover, in a slanting direction opposite the fire, so as to hasten the process of steaming by the external heat, she throws a nap-kin over the potatoes, which receives and retains so much of the steam as does not make its escape, while it performs the equally essential office of preserving the heat of the vegetable below.

When potatoes are boiled—the usual mode of dressing in Ireland—it should be recollected that they are deprived of their nutritious qualities by over-boiling. The peasantry are well aware of this, and say that they are "strongest" when the "bone" is left in them, that is, hard boiled. In this condition they require the powerful digestion of the labourer.—*Western Rural.*

Worms in Milk.

WE (*Gloto-worm*) have received the following note from a scientific correspondent relating to the finding of worms in milk:—A lady, in an agony of fear, took to a Brighton chemist a specimen of milk to be examined, declaring that worms, active and red, were to be found in it, and, having used it at the breakfast table, was much disgusted at the discovery. Examination resulted in obtaining from the bulk of the supply several lively specimens of the larva of the common gnat. The dairyman had drawn his supply of water from a tank that, open to air, admitted the insect—and hence the result.

☞ Why is wheat like a baby? Because it is first cradled, then threshed, and then becomes the flour of the family.

☞ To clean cider barrels, the *Scientific American* says, put lime water and a common trace chain into the barrel through the bung-hole, first tying a strong twine to the chain to draw it out with. Shake the barrel about until the chain wears off the mould or pomace, then rinse well with water.

CIDER VINEGAR.—S. J. Woodman, of Chicago, Ill., writes to the New York Farmer's Club, that a barrel or a cask of now sweet cider, buried so as to be well covered with fresh earth, will turn to sharp, clear, delicious vinegar, in three or four weeks, as good as need be.

BOLOGNA SAUSAGES.—In compliance with the request of a correspondent we furnish a receipt for German or Bologna Sausages:—Mix 10 lbs. of Beef and 2½ lbs. or 3 lbs. of fresh fat Pork, chopped fine, 1 ounce of mace, and 1 ounce of cloves. Stuff the whole into calico bags; leave them a day or two, and then put them in a brine barrel for ten days; then smoke them for a few days. Allspice, thyme, and pepper may be added if agreeable.

HOW TO CLEAN RIBBONS.—Wet the ribbon in alcohol and fasten one end of it to something firm; the other in your hand, keeping the ribbon out straight and smooth, rub it with a piece of castile soap until it looks decidedly soapy; then rub hard with a sponge, or, if much soiled, with the back of a knife, keeping the ribbon dripping wet with alcohol. When you have exhausted your patience, and think it must be clean, rinse thoroughly in clean water, fold between cloths and rub it with a hot iron. Don't wring the the ribbon; if you do, you will get creases in it that you cannot smooth out.—*Maryland Farmer.*

NOVEL RAT TRAP.—Place within the reach of rats some coarse oatmeal, mixed to the consistence of thick gruel, in a tub about two feet in depth—the oatmeal to be about two inches in depth. The rat ventures to eat his prepared repast, and then endeavours to make his escape, but to his great surprise he finds his feet fettered and clogged by his newly-found treasure, and is therefore incapacitated from giving the necessary leap. His fate is sealed. He shrieks to bring his friends and relatives to the rescue, who share the same fate. This remedy is simple.—*Mark Lane Express.*

Miscellaneous.

Teaching Agriculture as a Profession.

WE translate the following judicious remarks from the *Journal de l'Instruction Publique:*—

"We have applauded heartily the foundation of various schools of commerce and agriculture which flourish under our eyes, and we rejoice at their continued success. We have too many professional men, too many young men of talent, led astray by the vanity of their relatives, who wish, at any price, to see an advocate, a doctor, or a notary spring from the bosom of the family. It is necessary to endeavour to remedy this evil inherent in the human heart; and we cannot attain that end more surely than in honoring, by raising on the pedestal of a good education, the position of the farmer.

"Agriculture, like Law and Medicine, has become for us a science. The soil must be studied under all its forms, in all its elements. It will be turned and re-turned hereafter, by hands as intelligent as diligent, like the leaves of a good book.

"Everyone feels that the time is past when the soil poured into our heaped-up granaries the exuberance of its riches: on the contrary, it is necessary to do violence to it in order to extract a miserable subsistence. The days are far removed,—very far, alas!

—when they spread the gourons seed on the ashes, yet warm, of the glades of the forest—when the crops were so luxuriant as to conceal under the undulations of their golden ears the fences and the blackened stumps of the grand old pines, which formerly spread their shade over the place occupied by the rich harvest:—where raspberries, cherries, or wild pear trees showed themselves here and there, with their fruits or their red plumes waving amid the white ears of grain. Antiquity has thus represented Ceres, crowning herself with the flowers of the forest.

"This abundance may be re-created, but not as formerly, by the spontaneous production of the soil, but by the violence which will be done to it—by a profound study of its resources, and by rational culture. Let the pupils run, then, to those invaluable schools, where they will acquire a science more precious than a patrimony—the science of preserving, improving, and fertilizing the exhausted womb of the country."

Farming on Shares.

We are afraid that the old negro's experience, as given in the following paragraph, from the Cincinnati *Gazette*, is too general among the Southern blacks.]

An old negro thus relates his experience in farming on shares, which does not seem to have been altogether successful: "Yousee, mas'r, I sede workenest cullud pussen you ebor did see. I goes out early in de morning and nebar comes hum till plum night. Den Mary, my wife, she work all de day and night and a'most keep the chil'ren, so I lay up all my money. After I was sot free I speculate and make lots of money, put um by in de old woman's stocking and hide him in de logs. Ole mas'r he keep a ding-donglin' an' a ding-dongin' at me to come up and farm fo' him; and de ole 'oman, when mas'r speak ob de chil'ren and ole missus, bust out a crying and say she was a goin' anyhow; so I spees I'd better go too. An' ole master and I went down to town, and a lawyer made a contract and read him all ober, an' he sound all right, an' I put my sign on him. Next day I move up an' 'gin do work. I bire all de han's and massa board 'em. Sometimes it rain, and sometimes de han's bo sick; but it goes on all right until do money gum out ob de stockin'.

When the ole 'oman say de money was out ob do stockin' I tole her to fotch him up; and she as you lib it was all gone. Den de ole 'oman cry an' say we break up; but I tell her de crop was fine, and when we gedder um and sell him, we have more money den afore. When I tole ole mas'r de money was out, he say, 'Dat'a all right, Sam, I gum you lots.' Den I and de ole 'oman laff at what a fool she be fo' crying ober de money in de stockin.' After do crop be gedder, massa an' I settle; and, shu as you born I owe massa two hundred dollars. Mas'r say it all right and gum me de statement on a paper. Den I go down to town, an' take along de contract, and do Bureau man read de statement, an' ole massa charge me for de wet wedder, an' de sick han's, an' de board; and dat make more dan do work an' my money. I tole do Bureau dat was not do bargain; but he read de contract, and, afore God, dat contract change since do lawyer read him. Mas'r say I must work next year fo' make up what I owe him, an' I come down heah to see what I do about um. Tell you, it's mighty hard, mas'r, to lose all de money in de stockin', work hard nil year, and den be in debt.—Do regulationers come roun' one night, tlo me up to a tree an' whip me most to death, to make me tell whar de money dey specs I hab; but I tole dem how I spen' um hirin' ban'a an den dey let mo down, an' break up my furnitore, and go off wid de bedclothes. Mary an' de chil'ren's moe' naked, and we'a mighty poor now!" And the old fellow brushed a tear from his eye and stood waiting for the decision of this mighty Bureau man. This old man lived near Lebanon, Ky., and had walked all the way to Lexington to lay his case before the head of the Bureau.—*U. S. Paper.*

Natrel History of the Black Man.

THE Black Man emigrated tew this free and pius kuntry about 200 years formerly, in the lower story of a vessel; he wuz kindly furnished with a free ride, and sum rice and water for vittals.

Immegintely upon his arrival he commenced bizziness, for other folks, on our Eastern coast, and had plenty tew do.

He was very economical in his habits ov clothes, wearing but fu, and those seldom made out of cassimere.

He okasionally changed his lokation, moving into an adjoining State, but in these journeys he was always kindly furnished with a guide, so that there wuz no danger uv his getting lost.

In these trips he seldom took his family with him; they were either allowed to remain a hum, or made excursions in search of work to other States, under the guidanso of experienced guides.

Once in a while the Black Man would stray away to the cold and bitter North, and got cruelly lost.

His guides would mourn for him then, and search for him, but his family soon got reconciled tew the loss.

Everybody sed, where he lived, that he was the happiest critter that had ever bin discovered yet, with nothing tew do but work, and a kind guide tew watch over him awl the time, and mourn for him when he got lost.

But the Black Man is a very phoolish critter.

After 200 years ov this bliss, he grow cross tew his guides, and wouldn't follow the guides, and the konsequentz iz, that the guides have got mad, and I am afrade that the Black Man will have tew take care ov himself now.

He will find it very different from what it was before.

He haz got tew educate his own young ones now, and learn them how tew apel korrektly, one ov the most difficult things in the world; and he has got tew vote, and keep his familee together, and pay when he rides in the street kars.

I am afrade the Black Man haz made a mistako; if he haz, it iz a bad one, for hiz guides never will take him into their hands agin—no, never! They are mad, an don't like the way the Black Man quit them, when they was driv with bizness, and after they had took so much care ov him for so meany years.

I feel sorro for the guides; they alwus seemed tow have a great interest in the Black Man, but they are mad now and I don't know az I blame them much, for Black ingratitude is the poorest kind ov pay.

It perhaps would be well enuff for me to stait, for the bonefit of new beginners, that the Black Man formerly resided in Africa, before he cum here to look for work.—*Josh Billings.*

Horace Greeley's Barn.

THE philosopher of the *New York Tribune* is a farmer as well as an editor, and appears to have very correct views about most agricultural matters.

His ideas about barns and sheltering stock may be gathered from the following description of his barn from his own pen:—

"My barn is a fair success. I placed it on the shelf of my hill, nearest to the upper (east) side of my place, because a barn-yard is a manufactory of fertilizers from materials of lesser weight; and it is easier to draw these down hill than up. I built its walls wholly of stones gathered or blasted from the adjacent slope, to the extent of four or five thousand tons, and laid in a box with a thin mortar of (little) lime and (much) sand, filling all the interstices and binding the whole in a solid mass; till my walls are nearly one solid rock, while the roof is of Vermont slate. I drive into three stories—a basement for manures, a stable for animals, and a story above this for hay, while the grain is pitched into the loft or 'scaffold' above, from whose floor the roof rises steep, to a height of sixteen or eighteen feet. There should have been more windows for light and air; but my barn is convenient, impervious to frost, and I am confident that cattle are wintered in it at a fourth less cost than when they shiver in board shanties, with cracks between the boards that will admit your hand. No part of our rural economy is more wasteful than the habitual exposure of our animals to pelting, chilling storms, and to intense cold. Building with concrete is still a novelty, and was far more so ten years ago, when I built my barn. I could now build better and cheaper, but I am glad that I need not. I calculate that this barn will be abidingly useful long after I shall have been utterly forgotten; and that, had I chosen to have my name lettered on its front, it would have remained there to honor me as a builder long after it had ceased to have any other significance."

A FRIENDLY PASSENGER.—The Haverhill *Publisher* relates that during the Vermont State Fair a conductor on one of the railroads innocently extended his hand to a rustic young lady, expecting she would produce her ticket. To his great surprise Miss Verdancy quickly seized his hand, squeezed it most affectionately, and with that peculiarity of manner that always marks the so-called "capable girl," pronounded the cheerful conundrum of "How's your folks?" adding the remark that "it was nice weather." A stern sense of duty compelled the conductor to undeceive the fair creature and to explain to her that he wasn't a "friend of the family," and that he must see her ticket or the money for the ride. Amid considerable confusion "Jerooshа" produced her papers and allowed the conductor to pass without further inquiry about his "folks."

Advertisements.

THE AGRICULTURAL EMPORIUM.

If you wish to Purchase or Sell the best kinds of Seed, Stock, Implements, or Land, Subscribe for

THE FARMER'S ADVOCATE.

TERMS:—$1 per annum, in advance; in Clubs of four or more, 75 cents. $680 to be given to persons getting up Clubs.

☞ AGENTS WANTED. SEND FOR A COPY.

v5-23-11* Address, W. WELD, London, Ont., D. C.

IMPROVED BERKSHIRE BOAR FOR SALE.

BRED from First-class Stock, by R. HAMILTON, Esq., Hamilton. Price, $25, boxed and free on cars at Bowmanville.

H. ELLIOTT, Jr.

Hampton, Nov. 14, 1868. v5-23-1t.

FOWLS.

WE want one *Trio* of each—Dark Brahmas, Buff Cochin, Golden and Silver Hamburgs and French Fowls. Must be First-class, to cross on our Stock.

WADE & ARMSTRONG,

v5-23-2t. 1120 Market St. Phil., Pa.

FOR SALE,

WHITE COCHIN CHICKENS

FROM Col. Hassard's prize poultry. Also, SILVER SPANGLED POLANDS.

v5-23-1t BOX 274, P. O. Peterboro.

Duncan's Improved Hay Elevator.

PATENTED April 13th, 1867.

THE cheapest and simplest constructed Fork in use in the Dominion of Canada. County or Township Rights for the manufacture of the above Fork may be obtained from the undersigned.

v4-20-tf JAMES W. MANN, Port Dover, Ont.

THE BEST SHEEP MARK YET INVENTED.

IT is made of tinned wire stamped with name and number. Is cheap, does not wear out, and looks well. Price three cents each.

ARCHIBALD YOUNG, Jr., Sarnia, Ont.

☞ N. B.—AGENTS WANTED. v5-13-tf-o.o.t.

MILLER'S

INFALLIBLE

TICK DESTROYER FOR SHEEP!

DESTROYS the TICKS; cleanses the skin; strengthens and promotes the growth of the wool, and improves the condition of the animal.

It is put up in boxes at 35c., 70c., and $1, with full directions on each package. A 35c. box will clean twenty sheep.

HUGH MILLER & Co., 167 King Street East. Medical Hall, Toronto.

v4-14-tf

THE BRIGHTEST ITALIAN QUEENS IN AMERICA.

HAVING IMPORTED three extra fine Queens from the Dzierzon Stock, I can now furnish an unlimited number of the brightest Queens ever offered for sale. Price as usual, $5.

SAFE DELIVERY GUARANTEED.

I will also be able to furnish an unlimited number of Italian Stocks in the Fall, Italianized with Queens from the imported stock. Price in the S. B. hive $15—in the D. B. hive $20.

Orders must always be accompanied with the money, and will receive prompt attention.

J. H. THOMAS, APIARIAN, Brooklin, Ontario.

Aug. 1, 1868, v5-10-tf

NEW SERIES
OF
"THE CANADA FARMER."

THE Publishers of THE CANADA FARMER respectfully announce, that in consequence of the new Postal Law coming into operation on 1st January, 1869, a change in the mode of publishing THE CANADA FARMER has been rendered necessary. Heretofore, all Journals devoted to the advancement of Agriculture in Canada have passed through the Post Office free of postage; but the law enacted at Ottawa last session abolishes this privilege, and imposes a tax which, in the case of THE CANADA FARMER, will amount to Twelve Cents *per annum*, or one-eighth of the annual subscription. On the whole circulation of THE CANADA FARMER, this postage tax amounts to $1,680 annually; and it has to be paid—not by each subscriber on delivery of his paper—but by the publishers in advance, when the papers are mailed.

This measure has entirely changed the conditions under which THE CANADA FARMER has been published since its commencement, five years ago. No expense has been spared in maintaining the character of the paper as a first-class Journal. The best Agricultural writers in the Province have regularly contributed to its columns; the original illustrations have been profuse, and in the best style of art; and the paper and typographical execution have been unsurpassed by any other Agricultural Journal. The price of subscription has been maintained at the lowest price at which a semi-monthly Journal was ever offered to the public—and with the view of aiding the operations of County and Township Agricultural Societies, a very large reduction from that low price has been made to Societies. The New Postal Law puts a totally new aspect on the matter, and readers imperative some change adapted to meet the altered circumstances.

The Publishers of THE CANADA FARMER have resolved to meet the difficulty thus presented to them, by putting forth more strenuous exertions than ever before to increase the interest and usefulness of their Journal, and greatly to enlarge its circulation. They have resolved to commence, in January next, a

New Series of The Canada Farmer,

with a number of new and attractive features—and nothing will be left undone to make the coming series still more worthy of support than the past.

The new series of THE CANADA FARMER will be issued monthly; the size of the page will be nearly as heretofore; but each number will contain

FORTY PAGES OF READING MATTER,

instead of sixteen as formerly. And notwithstanding the new Postal-tax, the subscription-price of the new series will remain as before,

☞ONE DOLLAR PER ANNUM☜

Free of Postage—but without any deductions from that rate. The aid of Agriculturists throughout the Dominion is respectfully solicited in obtaining subscriptions for 1869.

Letters will be addressed as heretofore to

THE GLOBE PRINTING CO.,
TORONTO.

ONTARIO
VETERINARY SCHOOL,
IN CONNECTION WITH THE
Board of Agriculture, Toronto, Ont.

Established.....1862.

PROFESSORS:

ANDREW SMITH, V.S., Edin.—Anatomy and Diseases of Farm Animals.

J. THORBURN, M.D., Edin.—Veterinary Materia Medica.

JAMES BOVELL, M.D., L.R.C.P., Eng.—Animal Physiology.

GEO. BUCKLAND, Professor of Agriculture, University College—The History, Breeding and Management of the Domesticated Animals.

A. SMITH, V.S. and Assistant—Clinical Instruction.

Will re-open for Second and Third Year's Students on WEDNESDAY, the 11th day of NOVEMBER, and the session for First Year's Students will commence on JANUARY 6th, 1869.

For particulars, apply to the Principal, A. SMITH, Veterinary Surgeon, Temperance Street.

Toronto, Oct. 15, 1868. v5-21—1t

IMPORTED FOWLS FOR SALE.

ONE or two Pairs of DARK BRAHMAS, price $25 per pair. Three pairs dark chickens, from the First Prize Brahmas imported by Mrs. Varley, Toronto, price $10 per pair. Six pairs light Brahmas, $4 per pair. Cockerels, single, of either variety, low. Eggs, from first prize imported fowls; dark, $5, light $3 per dozen, in the Spring.

5-22-1t H. M. THOMAS, BROOKLIN.

Markets.

Toronto Markets.

CANADA "FARMER" Office, Nov. 30th, 1868.

THE market has been very quiet and dull. The demand has been very limited, and there have been only a few lots offering. Wholesale prices have ranged as follows:—

FLOUR AND MEAL.

Flour—No. 1 Superfine, $4 75; Extra, $5 35 to $5 40; Superior, nominal. *Oatmeal*—$6. *Cornmeal*—$4.

GRAIN.

The market has been quiet and unsettled. We quote wholesale prices:—

Wheat—Spring, $1 3 to $1 05. Fall, do., $1 15 to $1 24. *Oats*—50c. to 51c. *Barley*—$1 20 to $1 35. *Peas*—85c. *Rye*—70c. to 75c.

PROVISIONS.

We quote wholesale prices:—

Butter—Dairy tub per lb., 22c. to 24c.; store packed, 18½c. to 21c.; large rolls, 22c. to 23½c. pound rolls, 26c. to 27c.; grease, 8c. to 10c. *Cheese*—(new) in lots, 11c. to 11¾c. *Pork*—Mess, No. 1 per barrel, $23 to $23 50. *Bacon*—Cumberland cut, 10c.; smoked bellies, 12½c. to 14c.; rolls, sugar-cured, spiced and smoked (new), 12c. to 12½c.; unsmoked, 11c. to 11¾c. *Lard*, in crocks, 16c. to 17c.; in kegs, 14c. to 14¾c. *Eggs*—18c. to 20c.; retail, 20c. to 22c.

THE CATTLE MARKET.

Beeves—There is about an average supply of the inferior qualities, and first-class are scarce and command a higher price than recently—selling at $6 50 to $7; 2nd class, $5 to $6; and 3rd class go off on an average of about $4.

Sheep—There is a fair supply still coming in, but the market is no longer quoted as it was for some weeks past, and all offering in lots find a ready sale. First-class range from $4 to $4 50; second-class, $3 to $4; and third-class, $2 50 to $2 75.

Hides and Skins—Hides, green, rough per lb., 6c. to 6½c.; do. cured and inspected, 7½c. to 8½c.; do. dry, 11c. to 13c. Calfskins, green, 10c.; do. cured, 12c.; do. dry, 18c. to 20c. Sheepskins, $1.

Montreal Markets.—Nov. 23.—*Flour*—Superior Extra, $6 50; Extra, $5 75c. to $6 85c.; Fancy, $5 50c. to $5 40c.; Welland Canal Superfine, $5 10c.; Superfine No. 1 Canada Wheat, $5 to $5 25; No. 1 Western Wheat, $5; No. 2 do. $4 60c. to $4 70; Fine, $4 30c. to $4 40c.; Middlings, $4 10c. to $4 15; Pollards, $3 90c. to $4. *Wheat*—Canada Fall, $1 20c.; Spring, $1 15c.; Western, $1 10c. to $1 11c. *Oats*—Per 32 lbs., 50c. to 52c. *Barley*—Per 48 lbs., $1 10c. to $1 20c. *Butter*—Dairy, 21c. to 23½c.; Store-packed, 20c. to 21c. *Cheese*—Factory 10c. to 11c.; Dairy, 9c. to 10c. *Pork*—Mess, $22 50; Thin mess, $20; Prime Mess, $18; Prime, $15.

London Markets, Nov. 24.—White wheat, $1 10 to $1 15; red fall wheat, per bushel, 90c. to 93c.; Spring Wheat, 90c. to 95c.; Barley, $1 10 to $1 25; Peas, 73c. to 75c.; Oats, 44c. to 46c.

Galt, Nov. 24.—Large quantities of turnips are being sold at 12½c. per bushel. Barley sells at from $1 05 to $1 16. Hay from $11 to $12.

Guelph Markets, Nov. 24.—Fall Wheat, per bushel $1 to $1 08. Spring Wheat, $1 03 to $1 05. Oats, per bushel, 50c. to 55c. Peas, per bushel, 80c. to 83c. Barley, per bushel, $1 10 to $1 15. Wool, 26c.

Hamilton, Nov. 24.—Wheat—fall, white, per bushel, $1 20 to $1 25; red winter, $1 05; spring, $1. Oats, per bushel, 56c. Peas, per bushel, 80c. to 85c.

New York Produce Markets, Nov. 24.—Flour—Receipts, 14,000 barrels; sales, [illegible] barrels; [illegible] to 30c. superior State and Western: $5 25c. to [illegible] for common to choice extra State; $8 20c. to $7 75c. for common to choice extra western. *Rye Flour*—Steady, at $6 to $8. *Wheat*—Dull and heavy; receipts, 230,000 bushels; sales, 30,000 bushels, at $1 48c. for No. 2 spring; $1 43 for Nos. 2 and 3 do. mixed. *Rye*—Firm; receipts, 10,700 bush.; sales, 19,000 bush. Western at $1 40c. to $1 43c. *Corn*—Firmer; receipts, 44,000 bushels; sales, 47,000 bushels, at $1 10c. to $1 12c. for unsound, and $1 13c. to $1 13½c. for sound mixed Western. *Barley*—Steady; receipts, 1,800 bushels; sales, 2,000 bushels French at $2 20c. *Oats*—Firmer; receipts, 115,000 bushels; sales, 64,000 bushels, at 71c to 71½c. for Western, chiefly at inside prices. *Pork*—Lower, at $26 50c. to $27 50c. for new mess; $25 50c. to $26 60 for old do. *Lard*—Heavy and lower, at 15c. to 15¾c for steam; 16½c. to 17c. for kettle rendered.

Contents of this Number.

	Page
THE MONTH:	353
THE FIELD:	
The "Early Rose" Potato; Productive Vermont Farm; Irrigation of Meadow Lands; How to Kill Wild Oats; Unprofitableness of Hop Farming; Loss in Stacking Hay	354
Stump Pulling; Cost and Profit of a Root Crop; A Table of Dimensions of Dry and Liquid Measures; Norway Oats; Cranberries in Upland; Thin Sowing; The Manufacture of Manure; Feeding off Aftermath	355
STOCK DEPARTMENT:	
"Wharfdale Rose" (with illustration); The Compton Short-horns; Gems from the Report of a Sheep Show; Weaning Colts	356
CANADIAN NATURAL HISTORY:	
The Wolverene (with illustration); Salmon Culture in Ontario; Moles—Field Mice; Birds and their uses	357
VETERINARY DEPARTMENT:	
Open Synovial Cavities	359
THE DAIRY:	
Feeding Milch Cows; American Dairying in Switzerland; Dairying in the West; The Calves	359
ENTOMOLOGY:	
Apple Tree Borers; Ravages of Insects	360
CORRESPONDENCE:	
A Strange Well; Reclaiming Swamp Lands; Second Agricultural Society of the County of Rimouski, Quebec; Italian Rye Grass	360
EDITORIAL:	
Emigration	361
Australian Agriculture; The "Prairie Farmer" on Reciprocity; Rural New Yorker; Editorial Acknowledgments; Proposed Legislation	362
AGRICULTURAL INTELLIGENCE:	
Trade with the United States; Brief Items; New Cattle Disease in England	362
HORTICULTURE:	
Apples at the Nova Scotia Provincial Exhibition; New System of Rose Culture; The Resurrection Plant; Protecting Bulbs	363
Propagating Grape Cuttings; Chinese Primroses; A New Grape; Ploughing Orchards; New Dwarf Arbor Vitæ; Twelve Thousand Acres of Roses	364
POULTRY YARD:	
Dark Brahma Pootras; Barn Door Fowl	364
The Dutchman's Hen	365
THE APIARY:	
Montreal Agricultural Society; Good Yield of Honey	365
POETRY:	
A River Lyric	365
THE HOUSEHOLD:	
Keeping Out the Cold; Desolation Farm Yard; Economical Vinegar; Steaming Potatoes; Worms in Milk; To Clean Cider Barrels; Cider Vinegar; Bologna Sausages; How to Clean Ribbons; Novel Rat Trap	366
MISCELLANEOUS:	
Teaching Agriculture as a Profession	366
Farming on Shares; Natrel History of the Black Man; Horace Greeley's Barn; A Friendly Passenger	367

THE CANADA FARMER is printed and published on the 1st and 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

☞ Subscription Price $1 per annum, (POSTAGE FREE,) payable in advance. Bound volumes for 1864, 1865, 1866 and 1867, may be had for $1 30 each. Subscribers may either begin with No. 1 of the present Volume, or with the first No. of any preceding volume. No subscriptions received for less than a year, and all commence with the first number for the respective years.

CLUBS will be furnished at the following rates:—

TEN COPIES for..... NINE DOLLARS.
TWENTY COPIES for..... SIXTEEN DOLLARS.
FORTY COPIES for..... THIRTY DOLLARS.
ONE HUNDRED COPIES for..... SEVENTY DOLLARS.

To Agricultural Societies ordering more than 125 copies, THE FARMER will be sent at SIXTY CENTS.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisement taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to GEORGE BROWN,
Managing Director.

THE CANADA FARMER

NEW SERIES

VOL. 1, NO. 3

VOL. 2, NOS. 3, 4, 9-12

VOL. 3, NO. 1.

THE

CANADA FARMER

VOL. I..No. 3. | TORONTO, CANADA, MARCH 15, 1869. | NEW SERIES.

The Field.

Notes on Spring Work.

Owing to the early setting in of hard frost last autumn there has been a smaller breadth of land prepared for spring crop by fall ploughing than is usual, and it will be necessary to begin operations early this year, if the work of preparation for spring sowing is to be well done. It is better to leave land that is in grass or clover untouched, rather than break it up in order to sow with spring grain, unless it can be ploughed the previous fall. If, however, the land must be used for growing grain, and we know it is very common to break up sod for peas or oats, it should be ploughed sufficiently deep to enable the newly turned surface to be worked with a two-horse cultivator, or sharp toothed harrow, to form a tolerably mellow seed bed, previous to sowing. Let the farmer understand that it is not well to try to get in a great breadth of crops in a hasty manner. A few acres well prepared and cultivated will give twice the yield, with only half the labour at harvesting, that could be obtained from a much larger area with indifferent tillage. "What is worth doing at all, is worth doing well," is an old tried maxim that every farmer should remember and be guided by.

PEAS are usually the first crop that can be put into the ground in spring. They do best on sod land that has been broken up the previous fall, and can be cross cultivated in early spring to make a good, yet compact seed bed. This plant derives a large proportion of its food from the atmosphere, rather than the soil, so that it often brings a good crop with careless cultivation, that would prove fatal to other grain. Yet it is a plant that well repays generous treatment, and likes a good mellow seed bed in preference to the hard ungenial one it usually obtains. There are many varieties of this plant differing mainly in the size of the seed, length of haulm, and earliness of maturity. As a general rule, that which comes earliest to maturity will yield the best crop, and we think that too little attention has been paid to this matter hitherto. We imagine that the *Daniel O'Rourke Pea*, a variety of medium length in haulm and size of seed, and one of early maturity, combining great productiveness with richness in quality, a great favourite with market gardeners, would prove a valuable variety for field culture. It is now so extensively grown for market purposes that the seed can be had for about $1 50 per bushel. It ripens in two months from seed sowing. The quantity of seed required per acre depends a good deal upon the size of the pea; of the small field pea, two bushels per acre are usually sufficient if they are all well covered in, while of the larger kinds from 3 to 4 bushels will be necessary. Peas that are grown thickly will give a large yield of haulm, which is nearly equal in value to clover hay, if cut before it is dead ripe and well saved. We believe that if peas were drilled in like wheat, but at a greater distance apart, say every other drill taken out, they would prove a more productive and sure crop than with the ordinary care they now get. It would be no difficult matter for those who have seed drills to try the experiment and report results. We believe that if early ripening varieties of peas were grown they could be removed from the land in time to grow a crop of late turnips, to be fed off to stock on the ground in November, leaving the soil clean and fit for spring wheat or barley the next season. The best way we know of saving peas from the ravages of the pea bug is to feed them to the fattening hogs early in autumn, before the bug begins its work. Pork can be produced at much less cost at that time than if the fattening process is deferred till cold weather, and will bring as good a price from the packers.

SPRING WHEAT is next in order and is sometimes sown before peas, especially on dry well drained soils, where the land has been prepared by a fallow crop the previous season, and can be easily worked as soon as the frost is out. Wheat requires a compact, yet deep seed bed, more so perhaps than any other crop grown on the farm. There are so many contingencies on which this crop depends that it is always a matter of some risk to grow it; of late years the Wheat midge has proved very destructive to spring wheat, especially since the varieties of Fall Wheat grown have been either so early in maturity as to become nearly ripe before the midge fly appears, or have a coating of chaff so thick that it effectually prevents the worm from reaching the kernel until it is too dry to be penetrated.

So far, we have not yet discovered any variety of spring wheat that can be properly called "Midge-proof," although there are some that appear to be partially so, and gave fair returns last year, in a few favoured localities. Spring wheat requires a soil that contains lime and clay in considerable proportion, and well repays good tillage. If drilled in, 1½ bushels of seed per acre is sufficient: broadcast, 2 to 2½ bushels will be required.

BARLEY.—This crop requires extra care in providing a suitable soil, and good friable seed bed, in order to ensure success. It does best in dry loamy soil that has been well prepared the previous year by a fallow or root crop. It does well after a crop of corn, potatoes, or turnips, to which barn-yard manure has been applied, and well incorporated with the soil. The land must be dry, and free from any liability to retain surface water, which has an injurious effect on barley. The usual way among good farmers of preparing the land, is to throw it up with the plough into ridges of about 15 feet wide the previous fall. As soon as the soil is dry in spring, the land is deeply stirred with a two-horse cultivator, and left a few days to get warm from the sun. It is then well harrowed, the seed sown—either with a drill or broadcast—if the latter: it should be harrowed once, and may then be rolled with a rather light roller, though we do not advise it. Barley is a tender plant, and should not be sown till the soil is warm enough to ensure a quick growth after

the season is sufficiently advanced to avoid danger from hard frosts at night. There are three kinds of barley, viz :—Two-rowed or Chevalier, four-rowed, and six-rowed. The first has been but little grown in Canada, though where tried it has given a large yield of extra good quality. It is the favourite kind in Great Britain, and produces the finest and heaviest kind of grain.

The four-rowed is the variety most commonly grown here, having a stiff straw and large plump grain weighing more to the bushel than the six-rowed.

The six-rowed has one decided advantage in view of the present admitted liability of the crop to be attacked by the wheat midge and to suffer from drought, viz :—it ripens ten days earlier than the four-rowed. Three bushels per acre is the usual amount of seed required when sown broadcast.

There is scarcely any crop on which special manures can be tried to so much advantage as barley. Super-phosphate at the rate of 200 lbs. per acre, sown on the land and harrowed in just before, or with the seed, will give it a rapid growth in the early stages and a tendency to early maturity, besides adding considerably to the productiveness of the crop.

Oats will do well on land that is too heavy or too light for wheat or barley. Rich alluvial flats will grow good oats, and can be at the same time seeded down to permanent grass with timothy and red top. Oats are, however, a foul crop, and except on low meadows should not precede grass or clover, but rather be grown on land that is intended to be devoted to a cleaning crop the next year. They can be sown earlier than barley, though often sown too late after the other grain crops have been attended to. We think they do not usually get a heavy enough seeding. 2½ bushels per acre is about the usual practice here. In England 3 to 4 bushels of seed are given. White oats do best on dry soils, black on moist. In Australia nearly all the hay is made from oats sown at the rate of 4 bushels per acre, the crop being cut and cured when the grain is in the milk. One seeding will give three or four successive cuttings of hay in that climate, where there is no frost to kill the roots in the winter season.

Seeding Clover.—There is so much uncertainty nowadays about getting a successful stand for clover, owing to the variable weather in spring, that many farmers become discouraged and have abandoned the practice of having a clover ley as part of the usual rotation in farm crops. The old rule of sowing clover seed on fall wheat before the last snow of spring melts does not work well. The seed germinates too early, and the young plants get killed out by the spring frosts. We prefer to sow clover on barley, as is done in England. The plan adopted is to sow the clover seed immediately after the barley has been harrowed in, and the first rain will cover it to a sufficient depth to ensure germination, while it would fail to grow if covered to half an inch in depth. Where clover is to be sown on fall wheat, it would be well to sow only half the quantity about the middle of April, and the balance twenty days after, sowing the second seeding across the first to secure an even distribution of the seed.

Cultivation and Preparation of Hemp.

We intended to give an editorial on this subject, and wrote to H. G. Joly, Esq., M.P., of Quebec, who has grown the article for the past few years, and takes a great interest in the advancement of Canadian agriculture, for information; and the reply is so good and practical, that we prefer to give it to our readers, in place of our own article on the subject :—

It is necessary that I should begin by stating, for those who may not be acquainted with the fact, that the male, or fecundating flower of the hemp, and the female, or seed-bearing flower, grow upon separate and distinct plants. So that hemp, unlike flax, whose every plant bears seed, is divided between female, or seed-bearing plants, and male plants, which do not bear seed, but are indispensable for the fecundation of the female plant.

I have never read nor heard that it was possible to distinguish the sex of the plant in the seed of hemp; male and female must, therefore, be sown and grown up together. There is nearly an equal quantity of each; if anything, the female slightly predominates. The male ripens about three weeks sooner than the female. It is known to be ripe when its stem and leaves assume a yellowish hue. That colour makes it easily distinguishable from the female, which, at that time, is still perfectly green.

There are no two countries—scarcely two localities in the same country—where hemp is treated identically in the same way; but I think all the various modes of treatment can be safely classified under one or another of the two following heads—the old-fashioned European, or the new-fashioned Kentucky mode.

The choice of the ground, the way to prepare it, the sowing of the seed, and the cultivation between seed time and maturity, are the same in both these modes of treatment, which, in fact, differ but on one point, the harvesting of the crop.

Choice and Preparation of the Ground.

I will quote some good authorities on that subject, whose words will carry much more weight than mine, merely stating that, from experience, I have found them to be perfectly correct :—

Mr. Bradford, of Kentucky, says :—

"The soil for hemp must be a strong, calcareous, deep, warm, loamy, and perfectly dry one, deeply and thoroughly prepared by ploughing and cross-ploughing, according to its previous condition, until a fine state of tilth is produced."

Henry Clay says :—

"The lands which produce hemp best are those which are fresh, or which have lain some time in grass or clover. Manuring is not much practised yet (in Kentucky). Clover is used in lieu of it. Fall or winter ploughing is practised with advantage. It is indispensable in old meadows or old pasture grounds, intended for producing hemp."

Sebastian Delamer says :—

"Hemp gives but a very unsatisfactory return on soils of too sandy or clayey a nature, on shallow soils, on those which are apt to be scorched by the sun, or are unable to receive their due share of atmospheric influence. Fresh broken lands, in the midst of woods and forests, are favourable to its growth."

Sowing the Seed.

We sow hemp, in the District of Quebec, about the first week in May. You can safely sow yours, in Upper Canada, at least a fortnight sooner. Sow it broadcast, about one bushel to the acre (for hemp grown for rope-making, which is the only kind, I think, can be advantageously raised, for the present, in Canada). Harrow before sowing, and harrow and cross-harrow lightly after sowing.

Never sow seed older than the preceding summer's growth, for it is admitted by every one that hemp seed loses its vitality rapidly. The seed must be plump and full, and rather dark in colour. Whitish and greenish seeds are always bad.

Last year I imported seed from Piedmont, north of Italy. It came to an absurd price, but, with proper management, it ought to be got here for four or five dollars a bushel. This year I import Kentucky or Missouri seed (I think it is the same), for which I expect to pay, delivered in Quebec, from three to three dollars and a quarter per bushel. Mr. Wm. Evans, of the Agricultural Warehouse, Montreal, imports all my seed. From experiments made last year, I am, so far, inclined to give the preference to the Missouri seed over the Piedmontese. Some of the plants from the latter are, it is true, much taller than any produced by the former; but the crop yielded by the Missouri seed was a good average length, and much more equal in height and thickness than that from the Piedmontese seed.

There is no cultivation whatever required between seed-time and maturity; the rapid growth of hemp chokes up all weeds; in fact, it weeds itself.

Harvesting.

I have now reached the point at which the European and Kentuckian modes of treating hemp begin to differ from one another—I mean the harvesting—and I will proceed to show in what that difference consists.

In Europe, when the male hemp has become ripe, it is pulled by hand, plant by plant, allowing the female plant to stand, in order that her seed may ripen, which takes about three weeks from the time the male is pulled. After being pulled, the male plants are laid out to *ret*, or, as it is more generally called in the country, to rot, either on the ground, or in water like flax. The same process of retting is followed both in the European and the Kentuckian treatment of hemp. When destined to be retted in water, hemp is put up in bundles, which must not exceed ten inches in diameter or thereabouts, at the thickest part, so that the water may act easily on the centre of the bundle. Five or six days in stagnant water, when the weather is still warm, is generally sufficient. It takes much longer in running water. When the water is cold, owing to the lateness of the season, it is better to ret on the ground. It takes from one month to six weeks to ret on the ground, the time depending completely upon the greater or lesser frequency of rain.

When the bark which contains the fibre can be easily detached from the wood, in long strips uninterrupted, from the root to the top of the plant, the retting is completed. Hemp ought not to be spread upon the field to dry the moment it is taken out of the water, for it is then soft and brittle, and might be injured. The bundles must be put up standing along a fence, a wall, or, if neither be quite convenient to the pond, some light scaffolding erected for the purpose, after slackening the ties, which can be readily done by pushing them up towards the thinner part of the bundles. They are left standing for a day or two, until the water has run out of them. The plants are then fit to spread on the ground in thin layers. When dried on one side, turn them over, and a few hours of sunshine will complete the operation. Do not take them in unless thoroughly dried.

When the seed hardens, the female plants ought to be pulled. It would not do to wait until the seed is quite ripe, because the bags containing it will then burst, and the seed drops on the ground, and is lost. The seed is allowed to ripen for a few days on the field, care being taken to prevent the head of the plant, which contains the seed, from resting on the ground. It must not be beaten out with the flail. It is too soft for that, and would be crushed. The best plan is to bring barrels or boxes to the field, hold the handful of hemp with one hand, the heads of the plant placed inside the barrel or box, and with the other hand, armed with a small stick, beat the heads until the seed drops, after which operation the female plants are retted in the same way as the male plants.

When the seed is extracted, it is taken under shelter, and laid in very thin layers, not more than a couple of inches thick, for it is very apt to heat when not thoroughly dry. It is well to turn it over from time to time. After a month or so, when well dried, the seed is winnowed and put up in bags or barrels.

Such is the European mode of harvesting. Now for the Kentuckian. In Kentucky, Missouri, and other parts of the States, the whole crop of hemp, male and female, is pulled, or more often cut, at one and the same time. The period chosen is about halfway between the maturity of the male and the female plants, say about ten days after the male has ripened. The instrument used for cutting hemp is something like a reaping hook, only the blade is much stronger, nearly straight, with the slightest inward curve, and about twenty inches long; the handle is straight, two feet in length.

If the crop is to be cut with the hemp-knife, the operator is required to cut at once through a width corresponding to the length of the hemp, and as close to the ground as possible, spreading his hemp in his rear, in an even, smooth swath. It is afterwards spread out on a meadow for retting. This is "dew retting."

I think you will agree with me that the Kentucky mode is preferable, for the following reasons :—

1st. Because it does not exhaust the soil, the seed not being allowed to ripen; but if it stands for seed, it is on all hands acknowledged to be an exhausting crop.

2nd. It saves one pulling, both male and female hemp being pulled or cut at once; and that one pulling saved amounts to more than one half the work of harvesting. It speaks to common sense that the first pulling alone, according to the European system, when you must choose and pull the plants one by one, takes more time than a general pulling or cutting of all the plants at the same time; and when they come in Europe to the second pulling, that of the female plants, as they do not stand quite close together (the male plants having been removed), the work does not proceed quite as rapidly, in proportion to the number of plants pulled, as it does in Kentucky.

3rd. When it is intended to ret hemp in water, the warmer the water is the more rapid and perfect is the retting. Now, as the season advances towards autumn, the water cools rapidly. The ten or twelve days during which the female hemp is allowed to stand after the male is pulled, and the time afterwards required for hardening and ripening the seed, and taking it off (which is often protracted to one or two weeks by rain, for the seed cannot be knocked off unless the plant is perfectly dry), may cause a long delay, during which the water often gets too cold for retting the female plant (as happened to me last fall), and then you must ret on the ground, when the colour is not so fine. This applies more particularly to Lower Canada, where the seasons are shorter.

4th. I think the fibre of the female plant is stronger when pulled before the seed is ripe.

The high price of labour on this continent accounts for the new mode of harvesting adopted in America. The Kentucky hemp is quite as strong as the Russian, but its colour is not as clear, owing to its being retted on the ground, and it accordingly compels the rope-maker to employ tar of a lighter colour, which is more expensive than that required for the Russian hemp. Their water in Kentucky is not soft enough for retting hemp.

The Kentuckians sacrifice the seed, but they have found out that the saving in labour both in the pulling, and afterwards in the curing of the seed, more than compensates for the loss of the seed. In other places, where labour is cheaper, it may be otherwise. We have still got a great deal to learn from experience.

For those who will try the European plan (as both plans ought to be fairly tried) and save the seed, I will state that, taken equal weights of flax seed and hemp seed, hemp seed will yield in oil two-thirds of the quantity that flax seed does. This statement, however, must not be looked upon as conclusive. It is merely a personal opinion, based upon the results of one experiment made this last fall at Messrs. Turcotte's oil mill at Beauport. Those gentlemen had never worked hemp seed before. As we gain in experience we may expect more favourable results. But, even calculating upon that, if an acre of hemp yields, say, twelve to fourteen bushels of seed, and I think it will do that if carefully worked, that yield would be an important item, well worth the farmer's consideration, where cheap labour can be obtained. The oil is employed, in Europe, for painting. I got ours tried here by a reliable painter, and it gave much satisfaction. It appears, however, to change the colour of white lead a trifle more than flax oil does, but it is just as good for every other paint. The hemp cake is fed out to cattle with the same results as flax cake.

We have seen that by following the Kentucky mode of harvesting, the seed is sacrificed. In order to procure the seed necessary for the next season's sowing, they lay out a small patch of good land in hills, a couple of feet in diameter, disposed in straight rows, three feet apart each way. They plant seven to eight seeds in the hill. The same rules observed for the cultivation of Indian corn will apply in the after culture of hemp-seed. Those plants, with plenty of room to expand laterally, will throw out, in every direction, branches that get covered with seed. Of course, their fibre is quite worthless, owing to those same branches, but the yield in seed is extraordinary. I took myself, from two plants, about one pint apiece of clean seed. You can form an idea of how small an area of ground would be required in order to yield one bushel of seed.

As to the pecuniary returns from hemp, grown for the fibre, per acre, I must base my calculations upon the price paid our farmers last summer, namely, half a copper a pound for unretted hemp, and one copper for retted, delivered at the mill. One man was paid at the rate of sixty dollars per acre, irrespective of the value of the seed, but

that was the highest. Those who had well selected the land generally ranged between that rate and thirty-five dollars. The drought in our part of the country was extraordinary. The hemp crop suffered very severely from it, as did the flax, so that our success was far from complete. Some farmers, who had sown their hemp in good soil, but such as Sebastian Delamor describes as "apt to be scorched by the sun," were disappointed. Some others, who pitched it carelessly in poor soil, without due preparation, and expected a miracle, were more than disappointed. One must be prepared to meet these checks with patience. However, the general results of last summer's trial, allowing for the great damage done by the unusual drought, which at one time made me fear that all was lost, were of such a nature as to encourage those upon whose help we must mainly depend—the careful, intelligent and enterprising farmers, whose example will tell in the course of time upon the others.

When the male and female plants are pulled separately, the female being kept for seed, the price of half a copper a pound for unretted hemp is not unfair to the manufacturer. Both plants are then brought to him ripe; the sap is dried up; the leaves are gone, and in that state it will not lose more than half its weight in retting, which will bring it to one copper per pound for retted hemp. True, the manufacturer has got the trouble of retting it, but it may be worth his while to have ponds, and ret it in water, which will give him a superior article, the farmer generally retting on the ground. But that same price of half a copper a pound for hemp not retted, when both the male and female plants are pulled at once, is more than the manufacturer ought to pay; for while the male is dry, and worth that price, the female is still green and loaded with leaves, and will lose more than half the weight in retting; there ought to be some deduction in that case, say one-fifth or one-sixth on the whole; if the crop has been cut down with the hemp knife, the deduction ought to be much smaller, if any, because the manufacturer has not then got to pay for the weight of the roots, which is a considerable item. For my part, until the whole business is more practically understood by us, I would prefer it if the farmer were to ret his hemp himself, even on the ground, and deliver it at the mill at the rate of one copper a pound, as some have done. At that rate one acre, well cultivated, ought to yield him about fifty dollars. It would not impoverish the land if both male and female plants are removed at one time, and would prepare it for wheat.

Of course, it is useless to start the growth of hemp on a large scale, where you are not prepared to dress it. In Europe, they dress it by hand. Labour is too expensive here for such a slow process. We must have recourse to machinery, as they do in the States. A hemp mill worked by water, such as I put up at Lotbiniere last fall, given the motive power (water-wheel, steam or other; it appears that in Kentucky they use horse-power, in the absence of water-power) and a shaft on which to hang two pulleys, one for the break and one for the scutchers, will cost from three hundred to three hundred and fifty dollars, at the most.

The whole machinery consists in a six-roller break (Sandford & Mallory's pattern) manufactured by Mr. Wm. Moody, at Terrebonne, near Montreal, and sold by him for $240, and of two scutching pulleys, with five knives on each, (the pulleys made of birch and pine, and the knives of well-seasoned maple or spring steel). Hemp requires much less scutching than flax, I think two scutching pulleys, with five knives each, will be sufficient for the former, where five such pulleys are required for the latter. Put over the machinery a covering, consisting merely of a roof without sides, so that the dust will not trouble the men.

The scutching pulleys, with the knives attached to them, must be raised off the ground a good deal higher than for scutching flax. The shaft of these pulleys ought to be at least four feet from the floor of the mill, the men who scutch standing on stools. The reason is that, if you leave your scutching knives as low as for flax, the ends of the hemp will lie on the ground (it is often eight or nine feet long) where the knives, in their swift revolutions, pick them up. The hemp then gets entangled, and ultimately rolled up round the shaft, and is lost, as I found out to my cost.

The outlay of $300 to $350 for the machinery of a hemp mill, though not very considerable, is more than one would like to incur for the simple experiment of a new thing, especially when undertaken with some doubt as to the final success. But, without incurring any expense, the trial can be made—as I made it before building the hemp mill—either at any flax-dressing mill, or, in the absence of such a convenience, with the common old-fashioned flax-break, worked by hand, so well known to every farmer. If there be a flax-dressing mill at hand, you can make use, for your experiments, of the flax-break, taking care to slacken a little the screws that keep down the upper rollers. Hemp, being thicker than flax, requires more room between the rollers. If your flax-break is not very strong, to avoid injuring it it will be well to cut off the roots of thick hemp before passing it through the break, but you are not obliged to go to that trouble with a regular hemp-break. Once broken, scutch the hemp with your flax scutching knives, on revolving pulleys, taking great care that the long ends do not get entangled; or with a common hand scutching knife. Six pounds of retted hemp, at the rate of one copper a pound, cost the manufacturer five cents, and will produce one pound of clean dressed hemp. The cost, delivered at Quebec, of Russian hemp of the same quality as our Canadian hemp, was, last fall, about 9c. per pound, which I am told is not a very high price in this market. This would leave a margin of four cents a pound for dressing and delivering here; and I think we could give it cheaper than the Russian, hemp requiring much less scutching than flax. It is indispensable that it should be sufficiently retted, whether that be done by soaking in water or exposure to dew.

We are now beginning to dress our stock of hemp at the mill, for Mr. Onslow's rope-walk at Quebec. By the spring, I shall be able to state with more accuracy the cost of dressing hemp, and the yield of retted hemp in dressed hemp. I should not be surprised if, on an average, it took something less than six pounds for one. Some people tell me that they have found it to be five pounds for one. Experience will show.

I earnestly trust that the results of these experiments will be such as to encourage the cultivation of hemp on a large scale, and that it will be found profitable both to the farmer and to the manufacturer, in Canada, as it has been found in so many countries.

Quebec, Feb. 12, 1869. H. G. JOLY.

NOTE BY EDITOR—Mr. Joly is kind enough to say he will send us one bushel Piedmontese hemp seed, and two bushels of Missouri. We will distribute it in small quantities to any of our friends who may be desirous of making a trial of growing hemp in Ontario, in order to introduce the cultivation of this very desirable crop.

Practical Drainage.

BY ALLAN MACDOUGALL, C.E.

I.

The subject of drainage has been so often dwelt upon, that any remarks on it may now seem superfluous; but to a country like this, where so much land lies yet unbroken, and even on many farms fields are often to be found that are useless in early seasons from their wet state, a few practical remarks may be acceptable to those who are anxious to improve their lands, and would wish to make a commencement this spring. The following remarks are intended to show that, little by little, a farmer ought to drain his lands, using his own and sons' labour with that object, and not run into a large scheme that he may not have means to complete, and so be disheartened at an unfinished work, and blame a project the working of which is bad on account of its incompleteness. Let the work of drainage be commenced on a small scale, doing one field only at a time, and as the improved crops show the advantage, and the purse gets longer, larger portions can be done. It is very necessary, to ensure a proper result from the operations carried on, that each field, as it is drained, is thoroughly drained. One or two large drains from the wettest portions of a field, with a few small ones at varying depths, to wet places, do not fulfil the conditions of proper drainage. They answer for the time being, and for a certain distance on each side draw off the water; but the rest of the field is left without any means of being relieved of the superfluous water, and the consequence is an unequal and irregular crop, while the return to the farmer is little or nothing. Let a plan be resolved upon on which operations are to be conducted; fix on a field that from its position affords a good and easy outfall; it may be to a stream, or the field may bound a road where a drain already exists, or some waste land or mill pond may afford a reservoir for the water.

Outfall is the first thing to be looked to, as on this depends the whole success of after operations; it is not necessary that there be a great slope in the land; water, following the laws of gravitation, will always seek the lowest place, and on many fields that look quite level, or only appear to have a slight fall, so long as it is a uniform one, water will be freely discharged.

If it is necessary to lead the water through one or more fields to get an outlet, then the outfall drain should be taken down the sides of the fields it goes through, so as to be useful in draining the fields on both sides. In laying out the lines of the drains, the eye will always be a very good guide, as one can easily see how land slopes, and in small operations there is no great fear of going wrong, and when the trenches or grips are being cut, a little observation will soon show if the water has a fall or is level, so that an intelligent workman can soon learn how to bring up his drains.

The best time for commencing draining operations is when the weather is dry, particularly where the soil is silty, as the workmen's feet in the grips would cause the silt to purge, and fill up the trenches as soon as they were cut; or the silt, not being dry, would get into the drains, and choke them up. The time for putting in drains ought to be regulated by the cropping and other circumstances. A good time would be as soon as spring has completely taken the frost out of the ground, and the land is sufficiently dry to allow operations to be carried on; or they might be put in when the crop has been taken off the land, about the end of August or beginning of September. They ought then to be slightly covered over with earth, and allowed to remain so for a month or six weeks, as thereby the operations will be greatly assisted, and the work of the drains advanced one season. It is a bad plan to cover up drains immediately after they are laid in. By keeping them open, the trenches or grips let the air get into the ground, which it can only do after they have been filled in, when the drain by its working has drawn out the water, which does not take place thoroughly, sometimes, for two or three years. Thus the action of the drain is retarded, and more especially on land that is only being broken in, and the return for the money is longer in coming in.

Seeding to Grass.

If we wished to have good pasture, and intended the land to be broken up by the plough at the end of two years from the time of seeding, we would sow nothing but clover at the rate of twelve to fifteen pounds per acre. We know many will say this is a heavy seeding, and it is about double the amount usually given by the generality of farmers; but it must be remembered that only a liberal seeding will insure success in obtaining a good stand with so uncertain and capricious a plant as clover, when it is sown alone. As soon as the young plants are well up, a dressing of one bushel of dry unleached wood ashes per acre, sown broadcast, will greatly help them to get established in the soil and resist the drought of summer. Some advise sowing plaster, but it is best to be applied the succeeding year, when the clover has got fairly rooted in the soil. Sown on any grain crop, especially barley, which is the best on which to seed down clover, plaster has the effect of retarding the ripening of the grain, and increases only the amount of straw produced.

For a permanent meadow—one that is to be mowed and pastured alternately for a number of years—there is nothing equal to timothy grass. This plant is perfectly hardy, and withstands the severest of our winters without injury, and if sound seed and enough of it is sown, there need be no failure to obtain a good stand of grass, at whatever time it may be sown. It is a question as to the proper amount of seed required per acre of timothy. It lasts for years, growing in stools of bulbs that enlarge and spread from year to year, somewhat after the manner of a potato onion, and should never be too closely cut or pastured down. Owing to the fact that timothy, if too closely seeded, will grow weak and spindling, and that it seldom produces a good crop until the stools have begun to form and spread, it is advantageous to sow clover in the proportion of three-fifths by weight, or some other grass, along with it, to fill up the ground for the first year or two. The clover soon gets winter-killed out; and if not, the timothy, as it spreads over the ground, displaces the clover. Red-top is sometimes sown with timothy, though more generally it springs up spontaneously. We, however, do not like red-top grass, and for hay alone we prefer the timothy only, or with a small admixture of clover. Timothy, although a very nutritious and fattening grass for stock, gives but little aftermath when mown for hay, and therefore, in seeding down land that is required for permanent pasturage, especially for sheep, other grasses must be introduced that will afford a constant succession of herbage throughout the season.

We think the English practice of sowing several kinds of grass seed together might be carried out here to advantage for permanent meadows. So little has been done in that respect here, that it becomes a difficult matter to know what grasses to recommend, with a certainty that they will succeed in our climate, and few farmers are inclined to try the costly experiment of procuring seed from England to test the matter. Probably the best grass we could obtain, as giving a large amount of nutritious herbage during the latter part of summer and through the autumn, is the *Poa pratensis*, known under the names of *Spear Grass*, *Smooth Meadow Grass*, *Green Grass*, and in Kentucky as *Blue Grass*. It is in a measure indigenous to the country, although said to have been introduced from Europe, and springs up spontaneously in old rich meadows. This is the most valuable natural grass of America, and its prevalence in pasturage is a sign of the land being in good heart and well tilled. On poor or badly tilled land it is rarely seen. The seed is very small and light, weighing about four pounds to the bushel, and difficult to obtain in any quantity. The farmers of Kentucky and Pennsylvania find it comes in of itself on land that has been limed and well manured before being seeded down, so they do not try to save the seed of it. It is of very luxuriant growth, forming a thick heavy sward when once it takes possession of the soil, driving out all other grasses, and lasting for many years, spreading out by means of its perennial creeping roots. Where seed can be procured of this grass, a bushel per acre is the quantity sown—generally in the fall on winter wheat, or very early in spring, before the snow melts.

Of the English grasses, the best known here and most used at home is the Orchard Grass, *Dactylis glomerata*. Sown at the rate of one bushel per acre, this is one of the most valued and common of the pasture grasses, not only of Europe, but also of Asia and Africa. It grows rapidly, to a height of three feet, ripens earlier than timothy, and furnishes a rapidly-growing, dense and nutritive aftermath, and resists the effects of drought remarkably well, but should be closely cropped when used as pasture.

Italian Rye Grass, *Lolium Italicum*, is another European grass of value. It requires two bushels per acre, stands drought well, and is adapted to moist clayey soils, where it gives a heavy yield of herbage of good quality.

On the Application of Land Plaster.

Having been interested in the manufacture and practical uses of land plaster for over thirty years, and after studying its effects upon the various crops to which I have applied it from time to time, I am induced, for the benefit of the farming community, to submit the result of my experiments and experience with gypsum, as a top-dressing for clover, roots and barley, to which crops I have applied it with excellent results.

It is also a useful adjunct in barn-yards, stables, pigsties and cesspools, where it ought to be freely and constantly used, to prevent the escape of the ammonia evolved from decaying urine and animal matter.

There is no doubt that its action, when sown as a top-dressing upon growing crops, is wholly atmospheric, that its affinity for the ammonia, with which the common air is highly impregnated, by the gases constantly thrown off from decomposing matter, causes it to attract and fix these floating essences, for the use and benefit of the crops to which gypsum has been so applied; and though it may have no direct affinity for pure water, still I find that green crops, especially clover, which have received a top-dressing of gypsum, in attracting the ammonia during the night, also retain the dew in which it is embodied; for, in walking over a plastered clover field in the morning, I find my feet saturated with water, whereas, in an adjoining unplastered field, they would as surely come out perfectly dry.

My farm was originally a sandy loam. It has decreased in vegetable mould, and become more adhesive by arable culture for the last 35 years, to which latter effect the intermedis to pasturing of sheep has also contributed.

On this soil, 100 lbs. of plaster to the acre is the maximum quantity required, and when applied in excess, no greater effect is produced.

Used on barley, especially in dry seasons, its effects are beneficial; but when mixed

with two barrels of common salt per acre, the combination keeps the soil moist, strengthens the straw, and produces a better and heavier grain.

On turnips and carrots, a mixture of 100 pounds each of plaster and wood ashes, with two barrels of salt to the acre, applied as a top dressing, will greatly improve the crop both in quantity and quality, and will enable the roots to stand a drought such as they were subjected to last year, and keep green and growing all the time.

In the township of Waterloo the German farmers are applying it in the fall, upon their winter wheat, as they inform me, with good effect. I have not as yet tried it myself, but as they have used it more extensively last season, I presume the experiment is satisfactory.

The evaporation and escape of gases from manure heaps, stables, &c., &c., can be prevented by frequent sprinklings of gypsum, which absorbs these subtle elements, and precipitates them into a fixed salt of ammonia (hartshorn) for the use of the crops to which it may be afterwards applied.

The annual loss to farmers by the waste of evaporation is enormous, as the best and most subtle elements of their manure heaps, and urinal washings, are lost from want of proper economy and care, and, like the riches of a spendthrift, are dissipated to the wind for the benefit of others, and to the ultimate ruin of himself. In manure, upon which plaster has been from time to time applied, decomposition is retarded; but its whole strength is retained intact, and afterwards, when turned out in the field, effluvia is hardly perceptible. This proves that gypsum acts on the gases and ammoniacal matter alone, that it is an effective chemical agent in adapting those elements to the use of growing crops, and that it exerts no influence whatever on the soil itself.

T. W. C.,
P'aris.

Liquid Manure.

In Holland, Belgium, and to some extent in England, one of the great elements of success in obtaining heavy and continuous crops of grass, and green forage for soiling milch cows, from the same piece of land for several successive years, is found in the judicious and extensive use of liquid manures, applied to the land by means of water-carts or force-pumps. This liquid manure is not merely such as can be saved in the drainings of the urine from the stables and farmyards, but much of it is obtained by dissolving the solid excrements of animals in tanks constructed for the purpose. The tanks are so situated as to drain the urine from the yards and buildings, and from time to time the solid excrements are added. The whole mass undergoes fermentation, becoming a thick mud, to which water is added and stirred in, to make it thin at the time it is to be applied to the land.

Our farmers have not yet experienced the great benefits to be derived from this mode of using manure, which would be so peculiarly applicable in our hot, dry summers, and we hope at no distant day to see tanks for the purpose of collecting manure for distribution in this manner become a necessary appendage to every well cultivated farm. But, while we think this mode of applying manure to the soil, especially to grass crops, would be highly advantageous, and repay many times over the cost of tanks, water carts, &c., we imagine that the construction of tanks or cisterns in the farm-yard, in order to collect the liquid drainings of the stables, cow byres, and even the rain from the roofs of the farm buildings, in order afterwards to pump out the contents and spread them over the manure heap, at intervals during the dry weather of summer, would prove of signal advantage to the cultivator of the soil. Ordinary farm-yard manure, as made in Canada, contains a large admixture of vegetable matters, such as straw, corkstalks, &c., which, becoming dried up in summer, resist the decomposing powers of the small amount of excrements incorporated with them, so that by the time the farmer wants to haul the manure out on his fallow or plough it in for root crops, he finds the undecomposed vegetable matter greatly in the way of the efficient incorporation of the manure with the soil. Dried up manure heaps are also greatly liable to become fire-fanged, which destroys their value.

In Belgium these manure tanks are usually constructed by bricklayers, at a price proportioned to their capacity—the larger they are the less the price in proportion, the usual size of a tank or cistern being a capacity to hold 33,000 gallons. In Switzerland they make square holes in the ground, and line the sides with brick set in clay mortar. Where the soil is a tenacious clay, and there is no danger of the liquid manure percolating out at the sides or bottom, it is only necessary to construct the tank in such a way as will keep the sides from falling in, either from the effects of the action of frost or the trampling of animals near it. Where the soil is porous, it becomes necessary to make the bottom of stone flags, with the joints cut square, set on a puddling of strong clay. The wall is then to be built from and on this bottom, and hydraulic cement used instead of common mortar.

The cost of a tank containing, say 25 square yards of brickwork, would be about $50.

Harrows and Harrowing.

There are quite a number of patterns of harrows in use, but a really good harrow is yet a desideratum. There should be two classes of harrows used on every farm: a heavy, square-toothed harrow, to drag over newly turned soil and render the surface level, mellow, and at the same time deeply stir the soil; and a lighter and sharper-toothed harrow to cover in seed and break the crust on the surface, after the young plants have got a start.

We believe harrows might be used with more advantage than is usual among farmers, and we think that a round-toothed harrow, so constructed that the teeth may be raised or lowered by means of screws, to suit the depth they are required to penetrate the soil, would be a great advantage. Besides the usual work done by the harrow, it ought to be used more on fall wheat in early spring, to break the crust left by the washing of the fall and spring rains. Also, barley, or other spring grain, would be greatly benefited by a light stirring of the surface soil before the young plants get too high. Potatoes ought to get a light harrowing, lengthwise of the drills, as soon as the tops are through the soil.

But one of the most neglected uses of the harrow is that of scoring the surface of meadows and clover leys in early spring. It is very generally done in England, and has a wonderfully good effect in giving grass an early start. In old meadows, a little fresh grass seed is usually sown after the harrow has scored the surface, and this fresh accession of grass from seed keeps them in constant herbage to better advantage than trusting to a growth of natural and often inferior grasses, to take the place of those that run out through being too closely cropped by stock. To perform the operation of scoring the surface soil either on meadows or other crops, the teeth of the harrow should be slender and sharp, and so set as not to penetrate deeply enough to tear up the soil, and with it the roots of the plants; and we think that a round toothed harrow would be best for this purpose, being of lighter draft, offering less resistance to the soil, and, as it were, being self-cleaning. The work should be well done by harrowing twice, the one across the other.

Raising Early Vegetables.

Few farmers take the trouble to make a hotbed, or understand its management when made; but any one can obtain early plants of choice varieties of tomatoes, squash, cucumber, melon, cauliflower, &c., with little trouble and at small expense, in various ways. The most common is to sow seeds in boxes filled with rich soil that can be kept in a sheltered place exposed to the sun during the day, and in the house at night, to avoid danger from frosts. This plan, however, seldom produces stocky plants, and, besides, many are lost in transplanting, or from too much crowding.

A better plan is to procure a hundred or two of the smallest sized flower-pots, known as thumb-pots among gardeners. They cost $1 per hundred. Make a large shallow box, capable of holding from twenty-five to fifty of these pots, put a little coarse gravel for

drainage at the bottom of each pot, fill it up with rich earth, and plant from one to half a dozen seeds in each. Fill the box with clean horse dung, free from straw, and plunge each pot in it up to its rim. If handles are put on the box, it can be easily carried in at night, and put out in a warm sheltered spot during the day, watering regularly when dry. As soon as the seeds grow, pull all the plants but one out of each pot, leave that to grow and get strong, and when transplanting time comes you have only to have your holes ready, take your pot out, and holding it upside down, with the rim resting on your fingers, and the plant down between them, give a rap or two on the bottom with your other hand, and on lifting the pot, bottom up, the ball of earth in which the plant grows will be left adhering together, and can be put in the ground at once without disturbing the roots, or any risk of loss of the plant from transplanting, and it will do without shading. If properly put away after using, and cared for, these little pots will last many years.

J. M.

Alsike Clover a Permanent Pasture.

Some five years since, I sowed twenty acres of new land with Timothy Clover and Alsike. At that time Alsike Clover was very high priced, and as a natural consequence, only a few pounds were sown on the twenty acre field. The soil was clay loam, the land generally lay low, and wet, being a hemlock swamp. It was, however, well drained by surface ditches, and about 1st June was seeded with the above grass seed, sown with spring wheat on about ten acres, with millet on about five acres, and with carrots on the remaining five acres. The seed took well on all parts, but the growth on that part sown with carrots was monstrous. About one-half of the carrots were smothered. The remainder did pretty well, but about 1st November the Timothy was in many places two feet high, and plenty of it out in flower; yet although so rank a growth of grass had taken place, we harvested several hundred bushels of carrots. However, the carrots as a crop were certainly a failure. But from that hour to this year, the grass has been splendid, and far better on that first sown with carrots than anywhere else in the field. This fact I account for by the grass seed having such firm root and rank growth the first year. But what I particularly wished to call attention to was, that the Alsike Clover is ten times as thick now as it was when first sown. It seeds before Timothy, and possesses the power and inclination to "catch" in sod land, especially if rather low, and damp. In passing over the field each year about June, I notice thousands of young plants springing up everywhere; so much so, that I believe the Alsike will ultimately have all the land to itself.

C.

Experiments with Wheat in 1868.

For some years we have sown some small portion of our garden with various kinds of wheat, and have derived much amusement from watching its growth, and the date and peculiarities of the insect plagues. Last fall we sowed as usual, on the 7th September, eight different kinds of wheat, and up to the 4th of February of this year 1869, the wheat—notwithstanding the inclement season and entire absence of snow all through January—looked remarkably well. Not a blade seemed injured. It is, at the time I am writing, entirely bare of snow, and has been so for several weeks, and the wonder is that it is not injured past recovery. But more strange than this is the fact that some wheat presented to us by a friend, but too late to sow with the rest, is also uninjured, although not sown until the end of October. I examined it yesterday, and found it to consist of single tender blades—far too late sown to stool out in the least. If the general crop of Canada does as well as this unsheltered experiment, we have as yet derived little injury from the want of snow.

From these facts there would seem to be some other reason than frost and thaws to account for the destruction of the wheat crop, by "winter killing," in March, as we usually find the case. We rarely have such a freezing and thawing January as the one just past, to experiment on. If the young blade and that more mature survive the March trial, I will again communicate the result. The wheat in the experiment above mentioned is entirely unsheltered, and quite as much exposed as any wheat in the fields; and moreover, the wheat was harvested from the same piece of land in 1868, which was again at once sowed with wheat, but was well manured. I have long been convinced that wheat does not injure land to any extent by continuous cropping with the same grain, provided it is well manured.

C.

Goodrich and other Potatoes.

To the Editor.

SIR,—I have noticed several communications lately in your paper concerning the Goodrich seedling potatoes. One correspondent writes in the CANADA FARMER that "the Early Goodrich, Harrison, Calico, and Garnet Chili, are the best of all the seedlings originated and disseminated by the late Dr. Goodrich."

I differ from him in opinion with regard to two varieties, namely, the Calico and Garnet Chili. In 1867 I planted the Early Goodrich, Calico, Cuzco, Gleason and Garnet Chili, on the same quality of soil. The Calico did not yield as much as the Gleason, and the Garnet Chili did not yield over half as much. In 1868 I planted Early Goodrich, Gleason, Cuzco, and Garnet Chili, on the same quality of soil. From half an acre planted with Garnet Chili the yield was 97 bushels. From a quarter of an acre of Early Goodrich, 130 bushels. One-eighth of an acre Gleason gave sixty, and one-eighth of an acre Cuzco produced 83 bushels. I plant in drills, each piece of potato 15 to 18 inches apart. One of my employees dug from the production of one piece of the Cuzco twelve potatoes that weighed eleven pounds.

The quality for the table of all the varieties mentioned here is excellent, so much so that I could sell them in Kingston, if I chose to do so, for fifteen cents per bushel above the market price of other potatoes.

I have never had any experience with the Harrison, but clip the following from the Napanee *Express*, Dec. 11, 1868:—

"A Pennsylvania farmer reports to the *Country Gentleman* that the Cuzco, for profit, outstrips any other potato he raises. He gets this year 500 bushels an acre, where the Peachblow goes less than 300 and the Harrison about 200.

FRED. MEMBERY,
Bath, Ontario.

How to Prevent Smut.

Many of our cereal grains are liable to a disease known as smut, which is caused by the growth of a cryptogamous parasite that fastens upon the grain in the ear, just after the bloom is past, and turns the seed into a mass of blackish dust. This parasite is produced from minute spores or seeds, that seem to adhere to the seed grain, and if not destroyed before sowing, will in some strange and unaccountable way reach up to the heads of the grain, and there become developed into activity. In order to prevent this, it becomes necessary to destroy the spores while they adhere to the seed grain. It is well known that salt acts as a destroyer of all fungoid life, so that by steeping seed grain for a short time in strong brine, or sprinkling a mild solution of sulphate of copper over it, the vitality of the spores of smut attached will be effectually destroyed. Brine is always safe to use, while sulphate of copper is dangerous, it being a deadly poison, and a small portion of the grain impregnated with the latter might accidentally get within reach of poultry or pigs, or even by chance get mixed with what is to be made into flour. When brine is used, it is a good plan to spread the grain, after steeping, on the barn floor, and sprinkle over it fine air-slaked lime, stirring all up together till every seed grain gets a coating of the lime. The operation is to be performed a day or two before the seed is to be sown. We have always adopted this plan with the seed of both fall and spring wheat, and found it greatly diminish, if not entirely prevent, any liability to smut.

Since trees have been planted in Egypt they are beginning to have rain. Plant trees—not trees and fruit trees—they'll pay for their room and care in beauty, shade and fruit. Plant trees.

Duration of Vitality in Seeds.

There are few plants, the seeds of which will not grow in the second year after maturity, if kept in a cool place, neither too dry nor yet too damp. The seeds of most of the grains and grasses will keep their vitality for very many years. Instances have occurred of wheat having been grown from seed supposed to have been buried 2,000 years.

Parsnip and onion seed can only be depended on to grow the year after it matures. Beans are safe only for two years, as also are carrot, egg plant, and several of the pot-herbs. Radish, lettuce, spinach, parsley and asparagus, are good for three years. Celery, cabbage, cauliflower and turnip seed, may be tolerably relied on for four years after maturity. Beet, mangels, tomato, squash, pumpkin, cucumber, and melon, are good for five to ten years, and the four last, which are bi-sexual, generally produce the largest proportion of female blossoms, and consequently fruit, when grown from seed that has been kept from three to six years.

J. M.

White and Grey Plaster.

To the Editor.

SIR,—In the February number of the CANADA FARMER you have an article on Plaster, of which the following is an extract:—

"It is found in workable quantities in two localities in Ontario, namely, Paris and York, both situated on the banks of the Grand River.

"The whitest plaster is the best, and to be pure it must be beautifully white and semi-transparent.

"The dark colour of the York or Grey plaster is owing to its being impure.

"The grey York plaster is the lowest in price, &c., &c."

In the above you have made a mistake, which please correct in your next issue.

The *grey* plaster comes from Paris, and the *white* plaster from York. We have *no grey plaster in the York beds.*

At the International Exhibition, London, England, 1862, specimens were received from different parts of the world, and those from Canada were sent from the several plaster beds at the expense of the Geological Survey. There was only one first-class prize medal given for plaster on that occasion, and *it was awarded to me.*

ALEXANDER TAYLOR,
Manufacturer and wholesale dealer in plaster, from his beds of pure white gypsum,
York, Grand River, Ontario.
Caledonia, Feb. 23, 1869.

SAVE THE MANURE.—Farmers are not aware how much is wasted on their farms, that with little care and trouble might be made into valuable manure. Everything that can be decomposed, either in process of time, with the assistance of the elements, or by the aid of chemical agents, should be saved for the compost heap. Select some place in the barnyard, or adjacent lot where it will be convenient of access, and there gather your compost, adding from time to time such solvents as may be necessary. Here bring all the weeds, sods, briars, thistles, &c., that you are compelled to dig and cut up through the summer, and add to these from time to time whatever you have of waste material, muck from the swamp, decayed fruits, potato vines, leaves, the deposit from the sink, &c., and at the close of the year you will be surprised at the size of your heap, and be able to see for yourselves how much is really wasted on your farms that might be turned to valuable account.—*Rural American.*

OATS.—To judge by the talk in the American agricultural papers about Norway oats, Surprise oats, &c., and the big yields claimed by those who have the article for sale, the oat fever bids fair to outrival the potato fever. If any of our cousins across the line want a big thing in oats, let them send to Australia for seed. There they can obtain oats weighing fifty pounds per bushel, and giving sixty, eighty, and even one hundred bushels per acre, with the most ordinary care in culture, or almost no culture at all.

EXPERIMENT WITH SALT.—A correspondent in the county of Huron writes some of the results of his experiments with salt as a fertilizer. He tried it on fall and spring wheat in 1868, at the rate of one barrel to the acre. The time of sowing was the 18th of April, and it was sown on ridges in different parts of the field. The result on fall wheat was imperceptible. The spring wheat was treated at the same rate and same time of application. It was sown immediately after harrowing in the wheat. The result on spring wheat was "worse than useless." He gives as a reason that the salt brought the ridges, on which it was sown, forward of the rest, so that the midge ate every bit of it, and concludes with the advice to "experiment with caution."

FIELD PEAS.—Peas will be extensively grown this year, in view of the demand for the article from the States, and the prospect that pork will command a price at which it will pay to fatten hogs. In answer to enquiries as to what variety is best to sow, we can hardly tell; so much depends on circumstances and seasons, that it becomes difficult to recommend one variety over another. Among the newer varieties of field peas lately introduced, the "Crown Pea" holds a high rank for quality and productiveness. The "Golden Vine" is a good variety for rather light soils. For a later ripening variety the "Black-eyed Marrowfat" is growing into favour. The Crown Pea has been extensively grown of late years in the county of Oxford, and a farmer near Ingersoll writes that "they are larger than the common pea, command a higher price, and will yield a third more. They are especially suited to rich strong soils, as they do not run to straw and lie down. They can be cut like hay. I cut mine with a mowing machine. The straw is much liked by stock, and they ripen earlier than most other kinds. I have grown them for the last four or five years, sowing at the rate of three bushels of seed per acre." The price of seed of the Crown Pea is $1 per bushel, delivered at Ingersoll station. Bags or barrels 30c. to 40c. each extra.

BEAVER MEADOWS.—A correspondent, G. W. P., at Bathurst, desires information as to how to treat a beaver meadow that has been cut for forty years, and is now run out. Although we have seen many of these alluvial deposits, and had one on a farm of our own, we cut the natural grass without attempting to improve it. If any of our readers have had experience in breaking up and seeding a beaver meadow with cultivated grasses, we should be glad of the information as to how it can best be done. We think if the soil was dry enough—and if it is not, it might be made so by proper drainage—the natural grass could be turned under with the plough, and the land sown with oats, on which timothy and Kentucky blue grass might be seeded down. If the meadow is wet and mucky, and cannot be drained to advantage, it would be throwing away labour to try to grow cultivated grasses on it; the value of the muck upon it to use in manufacturing manure by composting in the barnyard, stables, &c., would be its chief advantage. Probably filling up the break in the old beaver dam, and thus flooding the meadow for a year or two, would kill out the grass in it, and when the water was let off after the operation, a new and strong growth of blue joint grass (*Calamagrostis Canadensis,*) which is one of our best and most common wet meadow grasses, would take possession of the soil as soon as it became tolerably dry on the surface.

WOOD ASHES AS A FERTILIZER.—This is one of the most valuable fertilizers within the reach of the farmer. The unleached article has the more potash, but the leached is thought to be quite as valuable. In leaching they shrink a good deal, and lime is usually added, which increases their value. They are generally sold, too, at a less price. Ashes are well suited to all farm crops, and are very beneficial in the fruityard and orchard. Most farmers sell wood in the cities and villages, and rather than go home empty they should carry back ashes and other fertilizers, to replace the potash, lime and phosphoric acid that have been carried off in the crops and animals sold. Ashes show immediate effects from their application, and at the same time last long in the soil. They are very highly appreciated in the onion growing districts, but may be applied with equal advantage to ordinary farm crops. They should be kept as near the surface as possible, spread and harrowed into the seed bed or applied directly to the growing crops. Make a business of saving, buying and storing ashes during the winter for the next season's operations.—*American Agriculturist.*

Rural Architecture.

Roofing Materials for the Farm.

NO. 2.

In a previous article under this head we gave some account of Tiles as a permanent roof covering. We now proceed to mention matters of a more temporary nature.

The Celt, in his native place (where, from some reason or another, which it is not the province of this journal to discuss, he seems obliged to resort to all sorts of shifts), is one of the most primitive of roof builders. Rough poles must, of course, be had for rafters, and these are joined without much symmetry; various matters, such as brush, sticks, and other things of temporary growth, form the material to cross the rafters, the whole being covered with turf sods, which in the moist climate grow more or less together, and form a rude means, though not always effectual, of turning off the water. So far does growth proceed in this way, that Walter Scott, in some of his works, points out the roof of the cabin of this construction as giving promise of better pasture than a great deal of the surrounding land. Turf and sods, however, as a class of covering, will, we think and hope, never become a national material in Canada.

The first covering to our settlers' houses is, nevertheless, very little better, and certainly not more lasting, being often formed of basswood troughs, split out of small trees, the round side remaining in its natural state, the flat or split side slightly hollowed with the axe, so as to form a continuous channel for the water. These are made of a length equal to the entire breadth of the building they are intended to cover. They are ranged side by side, the round side down, until the surface is covered. Other logs, similarly split and hollowed out, are prepared, and are made to cover the interstices of the bottom troughs. The vacant spaces are stuffed with moss to keep out the wind. The upper or reversed troughs conduct the water to the under ones, and they carry it free of the building. The troughs form rafter and covering in one, and for the time are a most serviceable roof. Being such as the settler himself can make, there is no outlay, and they do not require a single nail in the whole roof. These troughs are, for shanties, or buildings with only one slope to the roof, very popular in the bush, and are constantly used on the first settlement of new land; but they are not lasting, and seldom remain water-tight for more than five or six years, if so long.

The next Canadian materials are sheets of elm bark; but these are also perishable, and have the double disadvantage of requiring a roof frame to support them. Such as they are, however, they are extensively used in all very new settlements.

Shingles invariably follow in the wake of these expedients; but shingles require lumber or boards on which to lay them, and nails with which to fasten them, all which are serious considerations. The getting of shingles, then, is a question which involves a good deal of thought as well as of exertion.

There is one kind of shingles, called clap-boards, which are free from these objections. They are made of oak, and split into lengths far greater than ordinary shingles. They are then laid side by side, lapping one another and breaking joint, and held in their places by a framework placed across them; loaded in some cases with stones of sufficient weight to keep them all in their places; but these may be considered rather a variety than a different species of the shingle roof.

Good pine shingles, well chosen, split thick, and carefully laid on, have been known to last forty years. Twenty years, however, is the general extreme duration of this roof; they wash away, rather than either rot or decay.

The great English, and indeed European succedaneum for the other kind of roof coverings is "thatch," and it is difficult to find a farm homestead in England, Scotland, or Ireland, without a specimen of this covering. In Canada, however, we must greatly improve in our agriculture before we can adopt the usual thatch of wheaten straw as an ordinary cover for buildings. Straw thatch denotes a superabundance of the article of straw; and here, unfortunately, we have universally a deficiency of that substance. Still, under most circumstances, it is cheaper than other materials. Thatch is made of every kind of coarse fibrous substance, and its equivalents—rushes, heath or heather, reeds, brush of all kinds when fine enough, broom, and even furze—are all used for the purpose, according to the plenty in which they are found, and the absence of other material. Indeed, in one part of England, where they grow a great deal of brushwood, and manufacture it into hoops for the West India and other tropical trades, to bind sugar barrels with, the hoop shavings and splinters are fastened on the roofs of the labourers' cottages, and make a very tight and lasting, but extremely *bizarre* and ungraceful covering. They are put on to the thickness of at least fourteen to eighteen inches, and as they can neither be smoothed, nor trimmed at the eaves, they look as if the cottages were surmounted by coarse heads of hair, in most extraordinary confusion, and quite disproportioned to the houses.

There is no kind of common "stalky" substance that is not in some way or other used for thatch in Britain, but the chief article, as we said before, is wheat straw. This is used "threshed," for ordinary purposes, and unthreshed for the covering of dwelling houses, ornamental cottages, and other purposes of a superior nature. Unthreshed straw has the heads or ears of the grain cut off, and is then bound in bundles for the thatcher. Threshed straw is drawn by the hand from the heap or straw stack, then roughly sorted into untied portions or parcels called called "hands," roughly combed out with a rake, and piled up "athwart and across," in heaps, well wetted to make it lie close, and finally weighted by placing heavy substances on the top. Here it remains for a few days for the thatcher, and is finally laid on the building without other preparation. The actual method of thatching would take too long to describe in this place, though we may do so in a future article.

Thatching is of two kinds, "over-sparred" and "under-sparred;" the over-sparred takes the least straw, and is used for ricks and other temporary purposes. It is also used in repairing other thatch. Under-sparred thatch is used for permanent roofs.

The chief objection to thatch in Canada will always be, danger from fire. It is, where there are many sparks or chimneys, and where all use fires so extensively as we use them here, a very dangerous roof. It is, however, very warm and effective.

In some places in England, where building materials are dear and straw is cheap, the walls bear a most ridiculous proportion to the roof. Barns are often seen with a dwarf wall of from four to six feet high, and then a monstrous roof, reaching, perhaps, from twenty to thirty feet high, and with a great span. The celebrated "Tithing Barns," near Goodwood Park, South Hants, England, are of this nature, and similar buildings are often seen.

The same preponderance of roof over wall is also seen to a great extent in the low countries of Europe, such as Holland. The roofs are of tiles (of course supported by timber), and are often six times the height of the walls.

Slates are the next principal roofing material, but they will for many years be too dear for farm buildings. There is no doubt that slates form one of the best roofs in the world, and as we are yearly making new discoveries in the geological formation of Canada, slates may yet become a most important aid to the farmer.

Tiles, however, are likely to form the farmer's mainstay. Draining tiles we must have; and where they make drain tiles they can make roofing tiles with a mere change of mould, and either can be burned in a kiln of very simple construction or with bricks, as before described.

In England, many buildings are "tile-hung," that is, walls of inferior materials are covered with tiles to keep off the weather, like our clap boards, or shaped and formed like bricks, when the buildings can hardly be distinguished from the latter material.

VECTIS.

We are not certain that for this climate tiles may not be found more serviceable than even slates, which are very apt to split by the action of our severe frosts.

Veterinary Department.

Injuries of the Horse's Mouth.

Injuries to the horse's mouth are of frequent occurrence, and often prove very troublesome and annoying. In aged horses the teeth are unevenly worn, and become very sharp and projecting, thus injuring the cheeks and gums, and interfering with the process of mastication. The tongue is frequently injured from the bit in hard-pulling horses, and in some cases it is nearly cut in two. The fold of mucous membrane (*frenum linguæ*) which attaches the lower part of the tongue to the floor of the mouth, is occasionally injured by the tongue being violently pulled to one side in the administering of medicines, by careless people; and foreign substances now and again become lodged in the muscular substance of the tongue, towards the base. We recollect a case where a small needle had penetrated the tongue and become embedded there, giving rise to excessive swelling and irritation. The symptoms produced by these injuries are increased discharge of saliva, difficulty in masticating the food, and in severe cases the horse will altogether refuse his food. This is especially the case when either the *frenum linguæ* or the root of the tongue is the seat of injury. The tongue is occasionally swollen and protruding from the mouth, and the secretion has an offensive odour. When the irritation is the result of sharp and projecting teeth, the first symptom often noticed is the horse cudding his hay, which will accumulate between the grinders and the cheeks, in some instances to such an extent that it is necessary to remove it by the hand. As a consequence of this impaired mastication, and also an increased discharge of saliva from the month, the horse soon falls off in condition.

When these symptoms are presented, the mouth should be carefully examined, and in order to do so properly it is necessary to use the balling iron. When the ailment is the result of uneven wearing of the teeth, the remedy consists in the free use of the tooth rasp. If any irritant is lodged in the tongue, it should be removed, and the month should be gargled several times a day with tepid water, and a solution of alum, about one drachm to the pint of water. The horse should be fed on bran mashes for a few days, until the healing process sets in.

Occasionally the mouth is affected with an eruptive disease, called Aphtha or Thrush, which attacks the lips, the cheeks and gums. This disorder generally results from impaired digestion, or a debilitated state of the system, and is frequently brought on by eating hay or oats of an inferior quality. There is swelling of the mucous membrane lining the cavity of the mouth, and turning out of the lips. In a day or two after the first appearance of the swelling, small red spots appear, which finally become filled with pus, and turn to a yellowish tinge, then burst and discharge matter. This irritation of the mouth gives rise to an increased discharge of saliva, and the horse refuses his food.

In the treatment of aphtha a change of food is desirable, and a mild dose of laxative medicine may be given, as two or three drachms of aloes with one drachm of ginger. The mouth should also be gargled once a day with alum water, and the general comfort of the patient well attended to.

Diseases of the Digestive Organs of the Horse.

The pharynx is sometimes the seat of inflammation, in connection with sore throat or inflammation of the larynx, and it is occasionally injured by the careless administration of medicines. Some people are in the habit of giving balls to horses by means of a sharp pointed stick, and not unfrequently the pharynx is punctured, an accident which is speedily followed by acute inflammatory action, and often terminates fatally. The symptoms of this injury are alarming and well marked. The horse is quite unable to swallow either food or water, he suffers great pain, and is very much fevered, the pulse running high; the disease extends to the respiratory tract, and the breathing becomes distressing and laborious. There is also slight swelling externally, and the parts are very tender when pressed. The treatment should be such as to allay the fever and irritation, and this is best done by applying fomentations of hot water externally, which should be applied for hours to afford relief. Demulcents may also be given, and the throat and mouth gargled with a gargle composed of water eight ounces, laudanum half an ounce. The tincture of aconite should be given in doses of ten drops every three or four hours, according to the severity of the attack. We cannot too strongly condemn the practice of giving balls in the manner described, as many valuable horses have been destroyed by that means. Not long ago, one of the finest horses in the United States received injuries in the administering of medicines that proved fatal in the course of a few days,

The œsophagus or gullet is liable to become obstructed, which gives rise to choking. This occurrence is not quite so common in horses as it is in cattle. The obstruction may consist of a piece of carrot, turnip, or an apple; or it may be produced by chopped hay or straw, or by giving too hard balls. Choking may occur in any part of the œsophagus, but the obstruction is oftener situated in the cervical than in the thoracic portion. The symptoms of choking, in most instances, are very alarming. There is active suffocation, and if the animal tries to drink, the water is returned partly through the nostrils: there is spasmodic action of the muscles of the larynx and also of the muscles of the neck, and a discharge of saliva from the mouth, which is greatest when the obstruction is situated in the cervical portion.

In the treatment of choking, endeavours must be made to remove the obstruction; and in some cases, by giving small quantities of oil in gruel, the offending agent may become displaced. The bland fluid lubricates the part, and, in the endeavours to swallow, the foreign body will often slip down. Manipulation from the outside may also cause its dislodgement. In all cases, great care should be taken not to injure the pharynx. If these means fail, the probang must be used. In cattle the probang is easily passed, but in horses it is well to be very careful in passing it. If the probang is used incautiously, the walls of the œsophagus may be ruptured; and when such an accident occurs it invariably proves fatal.

Lice on Cattle.

In compliance with a request from a subscriber for further information on this subject, we once more bring it before the notice of our readers.

There are two species of lice which are said to affect cattle: First, the *Hæmatopinus Eurysternus*. This species is often met with about the head and neck, and, according to Denny, the young ones are more agile than the old. The second species is the *Hæmatopinus ani et vulvæ*, which are found principally on the thighs and under the tail.

Lice appear to be generally in greatest numbers on animals that are in poor and filthy condition; therefore, to remove them, great attention should be paid to cleanliness. Many different remedies may be used which will effectually destroy these insects. A decoction of tobacco, about two drachms to a pint of water, may be used with advantage. Mercurial dressings are also beneficial, but must be used with caution, and only a small surface rubbed at one time. The following formula is also recommended as a safe and effectual remedy:

Staveacre seeds, 4 oz.
White hellebore, 1 oz.

To be boiled in a gallon of water until only two quarts remain, and applied with a brush to these parts where the lice are seen.

The following note on the subject, from a correspondent, also gives a good suggestion, and with the cautions he prescribes the remedy may be safely tried. Red precipitate is a mercurial preparation:—

"Should your prescription fail, I would recommend a trial of red precipitate well mixed in hogs' lard, a teaspoonful of the former to a pound of the latter, applied by dipping the finger lightly in the mixture, rubbing it on the shoulders and back in no more than five or six places at a time. The animal requires to be kept warm during this course, which on that account may be preferable in the warmer seasons of the year. I have seen this course tried several times, and have never known it to fall short of the desired effect."

Veterinary Surgical Operation.

A London (Ontario) paper gives the following account of a remarkable accident and successful surgical treatment, which reflects much credit on the skill of the surgeon, Mr. J. H. Wilson, who last year passed a very successful examination, and received his diploma from the Toronto Veterinary College. Our contemporary says:—

"A remarkable case of veterinary surgery came under our notice a short time ago, resulting contrary to our expectations. The facts are as follows: A team belonging to W. R. Hodgins, of the 16th concession, London, got frightened at some object, and became entirely unmanageable. They ran furiously towards a barn, situated a short distance from where he was using them, and while running through the orchard, which is between the barn and the place of work, the near horse was thrown violently against a large apple tree, the concussion being so great as to fracture the right parietal bone, forcing the same downwards, and overlapping the frontal bone. On examination, it was found that the *dura mater* had been penetrated by particles of spicula, the *arachnoid* and *pia mater* (membranes covering the brain) escaping injury, and pieces of the wood and bark were extracted carefully by the surgeon, and the broken sections of the parietal bone were so adjusted as to cause little or no irritation of the brain. Great credit is due the veterinary surgeon, J. H. Wilson, of the village of St. John, who performed the operation, and saved the life of a valuable animal. This extraordinary operation ought to establish in the minds of the people of this Province the great use and necessity of proper education for those who profess the art of healing horses. Such an Institute is now in Toronto, providing the means, where the veterinary art is taught with great success."

GREASE IN HORSES.—A correspondent from Kelso, Quebec, wishes to learn what is a good remedy for this complaint in horses. Grease in an inveterate form is difficult to cure. In the treatment of all cases strict attention must be paid to cleanliness, and if the irritation is great, apply poultices of linseed meal for a few days, to which may be added a little yeast. The horse should undergo a course of medicine. A drachm of the iodide of potassium may be given once a day, until twelve doses are given. Any mild astringent applied externally will also be beneficial in hastening on the healing process. As we have before mentioned, in all bad cases it is well to call in the services of a qualified veterinary surgeon.

Apiary.

Impregnation of Queens—A Wonderful Discovery.

Intelligent bee-keepers have long understood that the queen bee is impregnated on the wing, that about the fifth day after she is hatched she takes her bridal tour to meet the drones in the air. And however desirable it may have been to control this matter, as we do that of cattle, this fact seemed to preclude all possibility of its ever being done. But since the introduction of Italian bees the minds of bee-keepers have been turned in that direction, in order to discover, if possible, some method whereby the impregnation of the queen could be controlled—some plan that would enable the bee-keeper to cause the queen to be fertilized by such drones as he might select.

It was seen that the advantages arising from such a discovery would be great indeed. There would be no difficulty in keeping Italians pure. Large apiaries could be Italianized in one season from one queen. There would be no loss of queens by going out to meet the drones in the air, as is frequently the case now. For a long time, however, there appeared no probability of such a discovery. Many methods were suggested and tried, only to prove failures. Much to the surprise of many, therefore, it was stated in the *American Bee Journal*, No. 9, for March, 1868, that Mr. Kohler had announced in the *Bienenzeitung*, a German paper, that he had discovered a process to prevent Italian queens from having concourse with common drones, and securing their fertilization by Italian drones exclusively. But as Mr. Kohler was poor and had a large family to support, he was advised to keep the process a secret until assured of compensation for his discovery. It was soon arranged, and eminent bee-keepers were appointed both in Germany and England to receive subscriptions for the process, at 10s. 6d. each, sterling. Learning that Mr. Woodbury, a Devonshire bee-keeper, was one appointed to receive subscriptions, I immediately wrote to him, enclosing the amount required. About the same time, I received from Mr. Gray, of Ohio, an extensive queen breeder, a process which he assured me was the Kohler process, he having obtained it through a friend. I immediately forwarded the same to Mr. Woodbury, who wrote to me, saying it was the Kohler process, also returning me the money.

The process was as follows: The stock containing a young queen to be fertilized was to be placed early in the morning in a dark cellar, along with a stock containing the drones with which it was desirable the queen should mate. Late in the afternoon, when all the drones, or nearly all, had ceased to fly, the stocks were to be brought out and placed on their stands, giving each a teacupful of warm honey. Having been confined through the day, the warm honey would excite them, they would rush out of the hives for a fly, and the queen would be fertilized. Of course, the hive containing the young queen should have no drones in it, unless they are such as you wish the queen to mate with, in which case it would not be necessary to put in another hive containing drones.

As soon, then, as it became known that Mr. Kohler had discovered a process, for which he was to receive a recompense, there appeared in the *Bienenzeitung*, and several other foreign periodicals, full accounts of methods practised by others for securing the same results, which being identical with the Kohler process, Mr. Woodbury and others appointed to receive subscriptions, refused to do so any longer, and returned the money they had already received.

This process, although far in advance of anything heretofore discovered, is not al that is to be desired. It requires the bees to be confined for a day in the very height of the honey harvest, and heavy stocks require time and labour to move them to and from a dark cellar or room. It also requires a large number of drones to ensure fertilization. The queens are still allowed to fly out to meet the drones, and may be lost. I have the pleasure, however, of informing my bee-keeping friends that a process has been discovered by an American lady, who keeps a large apiary, and is a regular contributor to the *American Bee Journal*. By this process all difficulties are removed, and the bee-keeper is enabled to secure the fertilization of a queen by one of four or five drones he may select for that purpose. Though it has cost me some expense and trouble to obtain this process at so early a date after its discovery, yet so soon as I am free from the bonds of secrecy that I am now under, I intend to publish the process for the benefit of my fellow bee-keepers. Though I have never tested it, having but lately obtained it, yet I have full confidence in the veracity of the lady who discovered it. She says that during last season she tested it many times, and not in one instance did the queen fail to become fertilized. I might here say that myself and brother talked over the same plan several times during last season, but through a pressure of business failed to try the experiment. So while we were thinking, our Yankee lady cousin made the discovery, a discovery which must revolutionize the whole system of bee-keeping.

Through the assistance of a friend, she is endeavouring to secure some compensation; therefore I am not at liberty to disclose it. I think, however, she will fail in doing so, for to my certain knowledge, several bee-keepers in the United States are in possession of the secret. I shall, no doubt, be able to publish it in time for next season's operations.

J. H. THOMAS.

Brooklin, Ontario.

Stock Department.

Early Fatted Hogs.

To the Editor.

Sir,—As the time is about at hand for making arrangements for the coming generation of swine, I should like to call the attention of our farmers to some points :—

1st. We require a larger number.

2nd. We shall require them very early the coming season.

3rd. I would very strongly urge on farmers to have a good breed, and this I should think a matter of easy attainment, as in every township there is a good boar, Berkshire, Essex, or some improved breed, and it would pay a farmer ten times over to drive twenty miles and pay $2 for service.

4th. Castrate very early. It is ruinous to the quality when they are allowed to run till they are 5, 6 or 7 months old.

5th. Spay the sows not intended for breeding, for they will fatten twice as quickly.

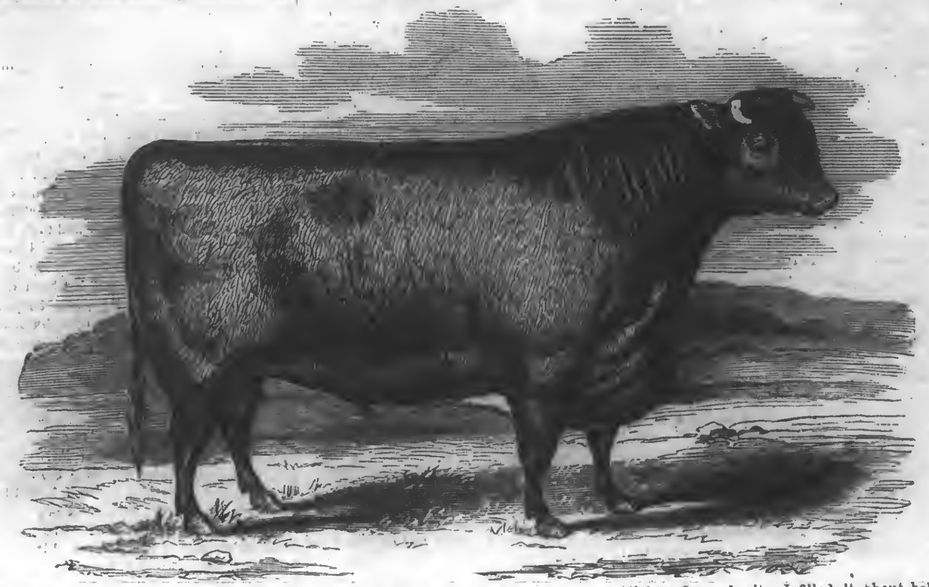
6th. Be sure not to let them run in the woods; it is ruinous to the meat, and it cannot be profitable to the farmer. I would particularly recommend farmers to grind the food for hogs ; they do so much better on it than on whole peas.

Attention to the above will be the means of raising the standard of Canadian pork in the English market. We often hear the remark that it does not pay to fat hogs, and in many cases this is true. It does not pay to have a hog running round for two years and only weigh 200 when killed, but it does pay to keep good pigs and have them weigh 200 lbs at six months old. The Berkshire are a capital breed ; they are healthy and hardy, and are fit for killing at six months old ; and if a great weight is desired they will carry it.

Most of the heavy hogs are not only heavy but coarse, the shoulders and hams of which are so heavy as to be almost unsaleable. If there never was a hog over 300 lbs, it would be a good thing. A Berkshire pig of that weight, thoroughly fat, makes as good mess pork as can be desired.

W. DAVIES.

Toronto Packing House,
Jan. 11, 1869.



Short-horn Bull "Minister."

In the January number of the Canada Farmer we gave a portrait of "Sweepstakes," a very successful prize bull belonging to Mr. J. H. Pickerell, of Harristown, Illinois, who lately visited this Province, and made extensive purchases from the best herds in the country. Mr. Pickerell was accompanied in his tour by another enterprising American breeder, Mr. W. R. Duncan, of Towanda Meadows, Illinois, who has now, partly by judicious purchases, and partly by careful breeding, collected an excellent herd of short-horn cattle. The annexed illustration is a portrait of the fine bull "Minister," at the head of this herd. His colour is red. He was bred by R. A. Alexander, of Kentucky. Since he came into Mr. Duncan's possession, he has been the winner at County and State fairs of prizes amounting, in the aggregate, to upwards of $1,500. His calves have also repeatedly gained distinction in the show-ring.

My Experience in Fatting Berkshires on Pea Soup.

Last year I put up five small-breed Berkshires to fat. They were about a year old, and had not been kept well, as we had but little feed. After the stubbles were picked clean, I determined to try pea-soup to fatten them. At that time they were in fair order, though rather small for their age. I dug a hole in a cradle knoll, and placed a potash kettle over it, with just sufficient room to light a fire under it. I filled it about half full of water, and fired up. The water was soon warm, and I went to the barn for some peas, after putting in what few I had in the bag, and on my return was rather alarmed at the extraordinary demonstration I witnessed. There were no less than five pigs in the kettle, attracted by the peas in the bottom, and as the water was rapidly getting warmer each moment, the place was evidently literally getting too hot to hold them. The sloping bottom prevented their jumping out, and had the water been hot, all would have been scalded. With some difficulty I pulled them out one after another, and great wiggling of tails was the result. They were not much hurt, but I lost no time in fixing a strong cover to the kettle, as I did not think it advisable to scald pigs before killing them. From this time forward I boiled the peas every day, and my Berkshires throve amazingly. After eating just five bushels of peas each, they were killed, and made 1,275 lbs. of as fine pork as I ever saw. The value of the pigs, before fattening, was estimated at $6 each, and that amount was offered for them for the American market, then very good. The peas were worth 60c a bushel.

The account would stand thus :

	Dr.	
5 Berkshire hogs, at $6		$30
25 bushels peas, at 60c		15
		—$45 00
	Cr.	
By 1,275 lbs. of pork at 6 cts. per lb		$76 50

Showing a profit of $31 50, or about $6 25 each. The common idea is, that to feed pigs on peas does not pay, as the pigs and peas are worth more than the pork ; but my case was different. It certainly paid to raise pigs at $6 each when put up to feed, and it certainly paid to fat them on pea-soup, at a profit of $6 25 each.

C.

From some carefully collected and very extensive notes made by Lord Spencer on the period of gestation of 764 cows, it resulted that the shortest period of gestation when a live calf was produced was 220 days, and the longest 315 days ; but he was not able to rear any calf produced at an earlier period than 242 days. From the result of his experiments it appears that 314 cows calved before the 284th day, and 310 calved after the 285th, so that the probable period of gestation ought to be considered 284 or 285 days.

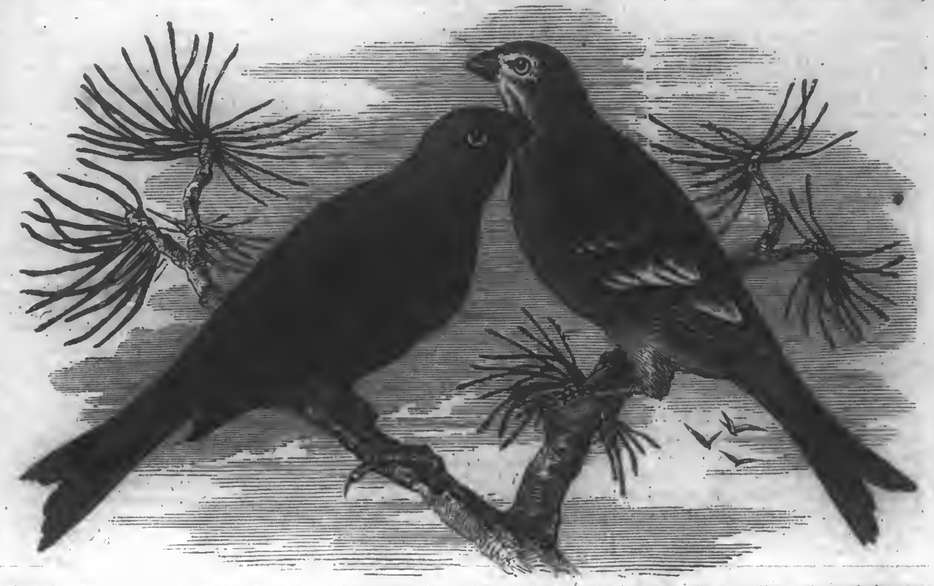
Natural History.

The Pine Grosbeak.

(*Strobilophaga enucleator.*)

During the present winter we have been favoured by a visitor from the north, the Pine Grosbeak.

This handsome bird has been seen in several parts of the Province in considerable numbers, and has contributed not a little to enliven our woods. Its home in the summer is in the northern parts of our own continent and those of Europe and Asia. It generally visits Canada and some of the northern United States in the winter, and returns in the spring, passing Hudson's Bay in May.



It is a comparatively large bird, measuring about nine inches in length, and its plumage is unusually gay for the regions which it inhabits, the head, neck, and breast being of a rich crimson hue. The feathers of the back are black, edged with crimson. The female is somewhat smaller in size, and of much more sombre plumage, the prevailing colour being slate or grey, with a greenish yellow tinge in part taking the place of the crimson markings of the male. The young males very much resemble the females, so much so, indeed, as not to be easily distinguished, except on close examination, when they will be seen to be a little larger, and to have rather more and a somewhat brighter tint of the greenish yellow colour, especially along the back.

The male and female birds are represented in the accompanying illustration. The absence of colour in the engraving makes the difference less conspicuous than in nature.

These birds live in pine forests, feeding on buds of various kinds, and on the seeds of the fir cones. Their note is sweet and clear, and Wilson, who had one for some time in captivity, says that it would sing for a whole morning, and imitated several of the notes of a Red-bird which hung near it. He describes it as being exceedingly tame, and states that it would ask for food or water with a continuous, melancholy, anxious cry.

Another bird, much smaller in size, but with plumage remarkably like that of the Grosbeak, has been frequently seen in Canada during the past mild winter. The similarity is so close that they have been commonly mistaken for a smaller variety of the same bird, whereas they are quite distinct, and belong to a different genus. This smaller bird is the White-winged Crossbill (*Loxia leucoptera*), and it can at once be distinguished by its very peculiar bill, which looks almost as if it were a deformity, the two mandibles crossing each other near the tip. This peculiarity, which gives the name to the species, is no *lusus naturæ*, however, or freak of nature, but a wise provision to enable the bird to extract more readily the seeds of fir cones, &c., from the situations in which they are embedded.

The White-winged Crossbill is a much rarer bird with us than the Grosbeak, yet both have been frequently seen together in flocks of various sizes during the present winter, in several parts of the Province.

Utility of Snowbirds.

To the Editor.

SIR,—Observing a few days ago a number of snowbirds perched on my apple-trees, seemingly very industriously employed, I felt curious to know what they were about. Taking care not to disturb them, I took a spy-glass, and saw they were busy pecking at the stems of the branches, but not touching the buds. I concluded they were picking off the lice, which, owing to the warm summer, seemed to have greatly multiplied.

After they left, I examined the trees, and found they had cleared them in good style, choosing the worst for their operations. The branches presented a white, speckled appearance after the operation, on the spots where the lice had adhered.

The surface of the snow being very crusty, and smooth, the shells lay thickly upon it, giving it the appearance of being thickly dusted with coarse pepper. Out of a few dozen of these shells picked from the surface of the snow, I could not with a microscope observe an egg in one.

This trait in the character of these birds not being generally known, I thought it might be interesting to some of your fruit-growing subscribers.

I have also observed what I call small flocks of canaries all through the winter. Their note is exactly the same, although they are darker in plumage than in summer. Perhaps some of your corresponding ornithologists may have observed the same, and will enlighten us on the subject, as I think it very uncommon. J. McL.

Owen Sound, February, 1869.

NOTE BY EDITOR.—We have long been of opinion that the Snow-birds (*Fringilla hyemalis*), as well as other members of the Finch family, are eminently insectivorous, and hence useful to the agriculturist. They may, and probably do, often pick up a useful insect such as a Lady-bird, a Syrphus fly larva or a Spider, but still, with all due deference to Mr. Walsh, we believe they do more good than harm. In the case referred to by our correspondent, they appear to have made a severe raid upon the eggs of the apple-tree Bark-louse (*Aspidiotus conchiformis*), which are covered by a shell-like scale, the secretion of the female insect. They would probably devour also the eggs of the Apple Plant Louse (*Aphis mali*), which are laid in the interstices of the bark, and any other insect which chanced to be up and about on the occasional mild days of winter.

The canaries referred to are, as our correspondent supposes, the same birds as we have with us in summer, but in very different plumage. Few who see these dingy little birds about their gardens and orchards in winter fancy that they are the same as the gay yellow and black goldfinches, or wild canaries, of summer. Yet such is the case, as ornithologists well know. They, too, are useful birds, devouring the seeds of thistles and other weeds, and multitudes of plant lice and other minute insects.

Poultry Yard.

The Use of Poultry Shows.

To the Editor.

SIR,—The Ontario Poultry Society are trying to come to the front once more with their fourth exhibition, and their efforts have been most liberally aided by donations from several firms in this city, and there is every reason to expect that Hamilton and London will also contribute towards the prize list. But whilst soliciting contributions for this purpose, we are met with various objections (I use the pronoun "we," not that I have the least personal interest in the proposed exhibition, but that simply I wish a good beginning successfully carried out.) These objections are made, in some cases, even by those who themselves keep poultry. One says:—"I only keep common birds, and do not believe in your fancy articles." Now, the Society's aim is not to encourage poultry as a fancy merely, although in many instances such will be the result, but to foster a branch of stock-keeping that might prove a lasting, solid advantage to the country. What I am writing is a thrice-told tale, has been already written by myself and others, and I am afraid will yet have to be reiterated. People who keep fowls might, at least, as well have good saleable articles as mongrel rubbish, at the same cost.

Again, another will say, "what is the use of your points? Why is a Spanish bird with less comb not as good as another? Why should Aylesbury ducks be rejected because their bills have tinges of yellow and black spots? Why withhold a prize from Dorkings which have not five toes?"

There is an excellent reply to this sort of reasoning in the *Journal of Horticulture*, March 3, 1863, which I shall quote in my aid:—

"It has been necessary to lay down certain rules, which have been admitted for some years. The great end they answer is to form well defined marks, which may guide the enquirer and beginner. The use of poultry shows has been to publish the merits and properties of divers breeds, and to point out those that are fitted for certain soils and certain markets. The characteristics of a breed being pointed out, a purchaser cannot be easily deceived as to whether it will suit him or not. He will not buy a Dorking without five toes; but if he were to be told that Dorkings with four are as good as those with five claws, he has nothing to guide or protect him. He is at the mercy of any one whose fowls he sees for sale. Or take the Aylesbury duck. If the buyer is told the bird must have a pale bill, he will not buy one lacking that mark. If any bill will do, every white duck, to the uninitiated, becomes an Aylesbury. These are but two instances; many more could be given."

Has any good quality been given up to attain the standard of excellence as regards points? Have Dorkings lost size or constitution? Have ducks diminished in weight or lost appearance? Dorkings have gained much in size, and in weight over two pounds each, while Aylesbury ducks, whose average weight two years since might be three to four pounds, now generally weigh four to eight pounds.

Again, take Pencilled Hamburghs. Roup was thought to be their natural state. People avoided the breed. There was no inducement to take pains with them, till competition and the requirements of exhibitions supplied the spur, since which time they have been shown in perfect colour, shape and markings, and strong enough to bear any trial in the way of climate. These are facts that speak for themselves.

Before I conclude, I should like to try and persuade those that now keep fowls not good enough, as they say, for exhibition, but an inferior lot, to try some recognized breed suited to their taste and means. They will cost no more to feed than the mongrels, and will be infinitely more remunerative in the sale of eggs; or by sending to exhibitions two or three picked from the lot, a price can be obtained which will pay for the consumption of food by all the others.

I have kept, myself, fowls to some extent for home consumption. They cost something to feed. I cannot say if they paid or not; but on getting a pure breed, and picking out a few and exhibiting them, I was paid more than the keep of all the rest, and had eggs and poultry on table gratis, or next to it.

I trust these facts will convince sceptics, induce the support of poultry exhibitions and improvement of the breed, and lead to the abandonment of that heterogeneous mixture of sorts that results in a mongrel race of fowls, and keeps our markets badly supplied with the wretched specimens we are constantly meeting with.

If a thing is worth doing, it is worth doing well, as my grandmother used to tell me. Every man that keeps poultry should keep good birds, and every grain and feed dealer should do his best as well to support the exhibitions of poultry; and need I say, the farmer and his family, as sellers of grain and eggs, should do likewise.

F. C. HASSARD.

Ontario Poultry Association.

The Ontario Poultry Association will hold their fourth exhibition of poultry and pigeons in the Agricultural Hall, Toronto, on Wednesday and Thursday, April 21st and 22nd. It was a disappointment to many poultry fanciers that no exhibition was held by this Society last fall, but it is confidently expected that the ensuing spring show will outrival any of its predecessors. The number of persons who take an interest in poultry is increasing in this country, very marked improvement is manifest in the various breeds of fowls, and a number of fresh importations from Europe have been made since the last

exhibition. Many friends of the Association have shown a laudable liberality in contributing to the prize funds, and the Society have every reason to expect a successful show in April, an expectation which we cordially hope will be fully realized.

Persons intending to exhibit can obtain full instructions concerning the rules of competition by applying to the secretary, Mr. T. McLean, Box 25, P. O., Toronto.

For the information of those who have birds to exhibit, or who wish to become purchasers, as well as to furnish a useful guide to Agricultural Societies, we give below the Prize list, omitting the repetition of the amounts, which, in the class of poultry, are $4 for the first, and $2 for the second prize: and in pigeons, $2 and $1 respectively.

PRIZE LIST.

POULTRY.

BIRDS TO BE SHOWN IN PAIRS.

CLASS 1—*Cochin China.* Buff or Cinnamon.
CLASS 2—*Cochin China.* White or any other colour.
CLASS 3—*Brahma Pootra.* Dark.
CLASS 4—*Brahma Pootra.* Light.
CLASS 5—*Dorking.* Coloured.
CLASS 6—*Dorking.* White:
CLASS 7—*Spanish.*
CLASS 8—*Game.* Black-breasted and other Reds
CLASS 9—*Game.* Duck-wing, Greys and Blues.
CLASS 10—*Game.* White, Pile and any other variety.
(Prizes given by A. McLean Howard, Esq.)
CLASS 11—*Hamburg.* Gold or Silver Pencilled.
CLASS 12—*Hamburg.* Gold or Silver Spangled.
CLASS 13—*Polish.* Gold or Silver.
CLASS 14—*Polish.* Any other variety.
CLASS 15—Houdan, Crevecœur, La Fleche, and other French fowl—any age.
CLASS 16—*Bantams.* Gold or Silver Laced.
CLASS 17—*Bantams.* Game and any other variety.
(1st prize given by Wm. T. Goldsmith, Esq., St. Catharines).
CLASS 18—*Turkeys.* Any variety.
CLASS 19—*Ducks.* Aylesbury.
CLASS 20—*Ducks,* Rouen.
CLASS 21—*Ducks.* Any other variety.
CLASS 22—*Geese.* White.
CLASS 23—*Geese.* Coloured.
CLASS 24—Any other variety of fowl not mentioned in above classes—any age.

PIGEONS.

BIRDS OF ANY AGE, TO BE SHOWN IN PAIRS, EXCEPT CARRIERS AND POUTERS.

CLASS 25—*Carriers.* Cocks. Any colour. (One prize.)
CLASS 26—*Carriers.* Hens. Any colour. (One prize.)
CLASS 27—*Pouters.* Cocks. Any colour. (One prize.)
CLASS 28—*Pouters.* Hens. Any colour. (One prize.)
CLASS 29—*Tumblers.* Any variety.
CLASS 30—*Jacobins or Frills.* Any colour.
CLASS 31—*Fantails.* Any colour.
CLASS 32—*Barbs.* Any colour.
CLASS 33—*Turbits.* Any colour.
CLASS 34—*Trumpeters.* Any colour.
CLASS 35—Any other variety of pigeon not mentioned in the foregoing classes.

The Judgment of Poultry.

To the Editor.

SIR,—Your correspondent, F. C. H., has written a letter upon this subject which will be read with interest, and thorough approval by every poultry amateur of the right sort F. C. H., may congratulate himself upon not having sent any of his Cochins to the last Provincial Exhibition in Montreal. They would not have been noticed by the judges, or if they had, they would have been awarded the prize for Jersey Blues, perhaps, as no animals of that species were shown, though under the special patronage of those who made out the prize list.

I was myself awarded a prize for Cochins, for a pair of dark Brahmas, at the last Exhibition, and to judge from appearances, no pains are likely to be taken to prevent the recurrence of such mistakes, or "jokes," as they were termed. Henceforth dark Brahmas are to be Cochins, and Cochins no fowl at all; Jersey Blues to remain as they are until further orders.

At the Exhibition referred to, the rights of exhibitors were ignored in the most arbitrary manner by the appointment of judges, who in fact acknowledged that they did not know one variety from another, and who awarded prizes for birds that were not exhibited.

Nor were exhibitors in other classes treated with more consideration. I sent my Alderneys, fresh from their triumphs at home, yet, although they had been entered weeks previous to the Exhibition, when taken to the grounds, there was no place for them save a muddy shed which had been used as a place for washing cattle, without divisions or anything to which the cattle could be tied. No notice whatever was taken of the animals by the judges, but when it was seen that the Alderneys formed an attractive feature in the Exhibition, a tardy and graceless recognition of their merit came from the Board of Agriculture of Lower Canada. In the course of two or three days, a card with honourable mention printed upon it, was stuck up behind their tails, and I was also notified that a silver medal had been awarded, a medal which I have not received, although five months have elapsed since the Exhibition. My experience, and that of other exhibitors, showed that the managers of the last Exhibition passed over without remark many abuses and acts of injustice.

S. SHELDON STEPHENS.

Montreal, Feb. 4, 1869.

Diseases of Poultry—Swollen Feet.

To the Editor.

SIR,—I am well acquainted with the disease mentioned by your correspondent in the CANADA FARMER of February 15th. I have not found it permanently to injure the birds. Beyond a slight lameness, they have not suffered by it. The hard swelling at the root of the toes becomes chronic if left alone, and the fowl assumes its usual paces. Outward applications are useless, and, I should think, to operate on the foot would be injurious. I have a hen which is always in a state of swelled foot. When she is quite unable to walk or stand, I place food and water near her, lift her upon the perch at night, and in other ways nurse her. She ceases to lay for a few days, but begins again all the better, and runs and walks till another attack comes on. She is never without the enlargement. Bumble-foot is a totally different affair, and requires prompt treatment. Bread poultice in the first stages, till the ulceration is developed. Then open the foot and cut away all the wart-like substance, allowing it to bleed freely. Change the poultice every day, with warm bathing, and encourage the foot to bleed. If matter seems forming, open the wound anew. Do not leave off the poulticing until the foot is healed and healthy-looking. Keep the bird all this time on nice clean straw, and give good food, with a little sulphate of iron in the drinking water. If the disease is taken in time, and the poulticing well kept up, the cure is certain. Rheumatism and cramp, with inflammation of the heart and lungs, which almost always follows, is a most dangerous disease, and one which has hitherto baffled all my efforts to cure. Fowls contract this disease from walking in and drinking snow water. I have lost two valuable Brahma chickens and a hen from it. Now I have a Houdan pullet under treatment. If she recovers, after seven days without being able to stand or eat, it will be a wonderful case. The inflammation flew to her heart and lungs, and the toes and legs contracted.

CHANTICLEER.

Chicken Hatching and Feed.

(To the Editor.)

SIR—The remarks on the above subject in your journal will be of some service to many. I have practised the process of hatching chickens more or less for some years, but I generally put them under the hen, as I think they dry more naturally there than in an oven. I do not at all agree with the writer of the article that Brahmas and Cochins are bad mothers. I think quite the reverse, after an acquaintance of some twelve years with Cochins. If you will keep the eggs properly moistened, and also get them fresh, your artificial handling will not be required. There is another important point. I say never put more than eleven eggs under any hen. Nine is my number, and if the eggs are fertile, nine chicks will appear. You can not guarantee more out of thirteen; because if the nest is deep, when hatched they are all huddled together at the bottom, and some will be squashed; and if the nest is very shallow, you will find an egg showing at various periods of incubation. This is consequently chilled, and probably spoilt; and it is not always the same egg. Many are

thus lost. At an average you will get more out of nine eggs than thirteen.

The writer does not consider four or five a brood. Well, that depends on the time of year. Late or early in the season, I never wish to see more than four birds with any hen. They cannot cover more at four weeks old, and then they get lung disease and die You must hatch early if you wish to do anything at chicken shows, and the cold will not hurt them if they have the mother to run under, and at the commencement of the year a hen cannot shelter properly more than four chicks. In May, June and July, it is different, as they then do not require so much care.

Notwithstanding these criticisms, I consider the communication a very valuable one to many, and trust that no one will expose their ignorance of an important subject by a laugh or sneer, as I can certify that many birds I have raised owed their existence to my having extricated them from the shell; but let the eggs be fresh, and wet them daily, and they will be out on the 21st day, before you are up.

F. C. HASSARD.

HOUDANS.—A subscriber wishes to know where he can obtain any Houdan fowls in Canada. We believe that Mr. Varley, of the 13th Hussars, now stationed in Toronto, has some imported birds of this variety yet to dispose of.

EGGS FOR HATCHING.—We frequently have enquiries as to where eggs of a pure breed may be procured. We have pleasure in referring parties in quest of such articles to the advertisements of Mr. T. McLean, the Secretary of the Poultry Association, and of Mr. Acres, also a member of the same society.

Fowls exposed to dampness are apt to be troubled with catarrh, which will run to roup if not attended to. Red pepper mixed with soft feed, fed several times a week, will remove the cold. Pulverized charcoal, given occasionally, is a preventive of putrid affections, to which fowls are very subject.

Chickens hatched in the early spring, where properly protected and tended, are generally more vigorous and healthy, grow more rapidly through the summer months, and make larger fowls than those arriving in later portions of the breeding season. And, furthermore, pullets which come in the early spring are so well matured that they will commence laying in the ensuing fall, and lay through the winter, if they are duly fed and protected.

GOLDEN PHEASANT.—Mr. Whitehead, of Bradford, enquires, "where he can procure a setting of "golden pheasant" eggs, also a setting of game of the blue kind. We are not quite sure whether our correspondent means golden pheasant fowls, golden pheasants, or gold spangled Hamburghs, which sometimes go by that name. If either of the former is meant, we are not aware that they could be procured in Canada. Hamburghs could no doubt be supplied by Mr. McLean Howard, of Toronto, who would also, probably, furnish the game fowls.

Entomology.

Ravages of a Grape Insect in New York.

That a man should desire to raise his own Isabellas is laudable and praiseworthy, and I see no reason why such desire should exist exclusively in the breasts of our bucolic friends. The inhabitants of New York, as a general thing, clearly, are of the same opinion, as is evidenced by the number of grape vines ornamenting the doors and trellis-work of the houses of our citizens; not, of course, in the benighted regions of Wall Street, but up town, say from 16th street northward. A friend of mine, residing in 34th Street, showed me, in March last, a very fine vine, which he calculated would produce him sundry pounds of very choice grapes; and in the pride of his heart, he invited me to "call along," occasionally, and feast my eyes on the gradual development of the incipient bunches. Thinking that August would be a good month for my visit, I "called along," wondering in my mind whether my friend would, when the time of ripe grapes came, desire me to help myself out of his abundance, or whether he intended to surprise me with a little basketful of nice bunches, garnished with crisp green leaves. The first glance at the grape-vine banished all doubts on this point. There was an abundance of bunches on the vine, in a rather miniature condition, of course, but of foliage there was not a trace. Of course, I expressed my surprise, though, for certain reasons, I felt none, and asked my friend why he selected a species of vine for shelter, ornament and use which produced no foliage. He rebuked my ignorance pretty sharply, and told me that a few weeks before the vine was covered with leaves; but, for some inexplicable reason, they had all disappeared—eaten, he guessed, by something. He guessed right. There were at least a hundred of the larvæ of *Alypia octomaculata* [a rare insect in Canada, ED.] the rear-guard of a mighty host, wandering about the branches, apparently for the purpose of making sure that no particle of a leaf was left undevoured. Pretty little things they were, with harmoniously blended colours of black, yellow and blue; but so terribly destructive. I had the curiosity to walk through all the streets of the rest of Third Avenue, as low as 23rd Street, and every one was in the same predicament. If grape leaves, instead of fig leaves, had been in request for making aprons, and our Alypia had been in existence at the time, I doubt if in the whole of the garden of Eden enough material would have been found to make a garment of decent size. The destruction of the crop for 1868 was complete.

This was bad; but it was not half so bad as the helpless ignorance which possessed nearly all the unfortunate owners of vines. Scarcely one that I conversed with had the remotest idea of the cause of the disaster; and when I explained that it was the caterpillar of a beautiful little black moth, with eight whitish yellow spots on its wings, which had eaten up the foliage, my assertion was received with such a smile of incredulity as convinced me that there is no use in trying to bumbug such very sharp fellows as are the New York grape-growers.

It is a little remarkable, however, that the destruction was confined to the eastern part of the city. I saw several luxuriant vines on the western side; and across the river at Hoboken, and Hudson City, not a trace of the insect was discernible.

The insect, then, is very local in its habits, and it is a day-flier; and from these facts, I infer that its ravages may be very materially checked. A little poisoned molasses, exposed in the neighbourhood of the vine, would operate on the perfect insect, while a good syringing with soft soap and water would bring down the caterpillars effectually. I should like some one to try these remedies; and if their gratitude for my good advice should be so exuberant as to require an outlet, why, I have no objection to receiving a few bunches of their first ripe grapes, if such a step would afford them any relief.—*W. V. Andrews, in the American Naturalist.*

Ravages of the Midge in 1868.

The following is the official account of the ravages of the wheat-midge in this Province during the past year, compiled from the "Report of the Commissioner of Agriculture and Arts of the Province of Ontario, for the year 1868." It is contained in the analysis of crop returns furnished by the Secretaries of the various Electoral Division Agricultural Societies.

ALGOMA.—The midge has not made its appearance.

BRUCE, SOUTH RIDING.—First season of appearance of the midge. Damage supposed 20 per cent.

BRUCE, NORTH RIDING.—Effects of midge considerable.

BOTHWELL—25 per cent. damage by the midge.

BRANT, SOUTH RIDING—Not much damage by the midge.

CORNWALL.—No mention of the midge.

DURHAM, EAST RIDING—From 5 to 10 per cent. damage by the midge.

ESSEX.—Damage by the midge 25 per cent.

ELGIN, EAST RIDING.—Very little damage done by the midge.

FRONTENAC.—Damage by the midge considerable.

HASTINGS, WEST.—Damage by the midge trifling.

HASTINGS, NORTH.—No damage reported by the midge.

HASTINGS, EAST.—No mention of the midge.

HURON, SOUTH RIDING.—Full wheat and much of the spring wheat received 50 per cent. damage from the midge.

HURON, NORTH RIDING.—Damage by the midge, say 33 per cent.

HALDIMAND.—Damage to wheat by midge about 8 per cent.

HALTON.—No mention of the midge.

KENT.—Fall wheat free from damage by midge. Spring wheat damaged by the midge.

LAMBTON.—Damage by the midge from 15 to 30 per cent.

LANARK, SOUTH.—Wheat 20 per cent. damaged by the midge.

LANARK, NORTH.—Not much damage by the midge.

MIDDLESEX, EAST.—Damage by the midge not mentioned, but the following note by the Secretary of the Society is appended:—"It has long been my opinion that if the old Mosaic Law were enforced, and farmers were prohibited from sowing white straw crops each seventh year, we should thereby get rid of the midge and save millions of dollars to the country. I believe I could easily prove this did space permit."

MIDDLESEX WEST.—No mention of the midge.

MIDDLESEX, NORTH.—50 per cent. of the crop damaged by the midge.

MONCK.—No mention of the midge.

NORFOLK, NORTH.—Fall wheat not much damaged by the midge. Spring wheat nearly destroyed, the crop only averaging 5 bushels per acre.

NORTHUMBERLAND, WEST.—No mention of the midge.

ONTARIO, SOUTH.—Severe damage by the midge.

OXFORD, SOUTH.—Not much damage by the midge.

OXFORD, NORTH.—In early-sown spring, 25 per cent. damage by the midge; in late-sown, very little.

PEEL.—About 30 per cent. damage by the midge.

PETERBOROUGH.—Wheat very little damaged by the midge.

PRESCOTT.—Wheat damaged by the midge

PERTH, SOUTH.—Wheat, both spring and fall, considerably injured by the midge.

RENFREW, NORTH.—Wheat not damaged by the midge.

RENFREW, SOUTH.—Not any damage by the midge.

SIMCOE, NORTH. — No mention of midge.

VICTORIA, NORTH.—Damage by midge perhaps 20 per cent.

VICTORIA SOUTH.—"Platt's midge-proof" tried, but did not resist the midge. 20 per cent. damage by the midge.

STORMONT.—Scarcely any damage by the midge.

WATERLOO, NORTH.—Nearly two-thirds of the "Soule" or "white chaff" wheat destroyed by the midge.

WATERLOO, SOUTH.—No mention of the midge.

WELLAND.—Ditto.

WENTWORTH, NORTH.—About 20 per cent. damage by the midge.

WENTWORTH, SOUTH.—Fall wheat not injured by the midge. The spring wheat injured 25 per cent.

WELLINGTON, SOUTH.—Scarcely any damage by the midge.

YORK, WEST RIDING.—Not over 5 per cent. damage by the midge.

YORK, EAST RIDING.—But little damage done by the midge.

YORK, NORTH RIDING.—Not much injury by the midge.

From the remaining Societies no crop return is reported, which is much to be regretted. It will be observed from the above returns that, except in some few favoured localities, the midge has not disappeared to the extent that was fondly anticipated, but that its ravages, on the whole, have been something frightful to contemplate.

The Meal Worm.

"R. P.," writing from Ashworth, desires to be informed how to prevent a scaly worm, about an inch long, from breeding in his flour bins in summer. He says that he has a good bin himself, and some of his neighbours have them almost air-tight, but still they are unable to keep out the nuisance.

Our correspondent has not sent us any specimens of his insect trouble in any of its stages, whereby we might have known with certainty its order and species. There is, however, an insect called the "Meal-worm," that is so common in flour and meal, that we do not hesitate to ascribe his trouble to it. Should we have guessed wrongly, perhaps he will make good his omission by sending us some specimens of the worm.

The Meal-worm (*Tenebrio Molitor*, Linn.), like many of our greatest insect nuisances, is an imported animal from the old world, but by no means one of the kind of stock that tends to the improvement of the country. In this case we have the satisfaction—if we are selfish enough to think it a satisfaction—to know that America has given Europe, in this particular, "tit for tat." They have sent us their *T. Molitor*, and we have returned the compliment by sending them *T. Obscurus*, both of which are very destructive to all kinds of flour and meal. Mr. Carter says that the American worm, introduced in American flour, is now very abundant in London and the Provinces, and that it prefers the sound, dry flour, while their old *Molitor* is good enough to show a preference for that which is damp or damaged.

The worms of both species are very much alike, so that the same general description will answer for either. Though they belong to a totally different family (*Tenebrionidæ*), they yet bear a very strong resemblance to the well-known Wire-worms (*Elateridæ*), being, like them, hard, smooth, and cylindrical, of a shining yellow or pale brown colour, with russet bands on the rings of the body; they have two short feelers (antennæ) in front, and six legs near the head.

(Fig. 1.) When full-fed, they enter the pupa state (Fig. 2.), during which they neither eat nor move about, and at length turn into black beetles. These beetles (Fig. 3.) are nearly three-quarters of an inch long, oblong-oval in shape, of a deep black or very dark chestnut colour; the European species is a little polished and shiny, while the American is quite dull, without any gloss; the former is much the most common and destructive in this country. We have found these beetles swarming in flour-mills and store-houses in all parts of Canada, and not the slightest attempt appears ever to be made to destroy or keep them out. In one country mill, a few years ago, we saw a heap of meal perfectly alive with the beetles and worms, but the owner did not appear to care in the least. There is no doubt that they destroy hundreds, aye, thousands of dollars' worth of our most valuable article of food every year; and not only that, but what many will think still worse, we are quite sure that a very large number of these insects are annually ground up with the wheat, and enter into the composition of our bread!

For this, like all the nuisances about a house, cleanliness is the grand remedy. We can hardly help sometimes getting the eggs or larvæ of this insect in our flour from the mill; but a farmer who takes his own grist can, if he chooses, be sure of its cleanliness, and then, by the use of air-tight vessels or bins, keep out the intruder from his flour. When a bin is already infested with the pest, it should be thoroughly cleaned out, and then scalded with boiling water, or fumigated with sulphur. The lid of the bin should never be left open in the summer time, as then the parent beetles are constantly on the wing, "seeking what they may devour."

Anti-Curculio Plums.

In a recent number of that valuable publication, the *American Entomologist*, mention is made of two varieties of plums that may be successfully grown without any trouble from the depredations of the curculio:—

"The first of these is the Columbia plum, a variety of the European species (*Prunus domestica*). The second is the Miner plum, otherwise known as the Hinckley plum, Isabel plum, Gillett plum, Townsend plum, Robinson plum, &c., which is a cultivated variety of one of our American wild plums, distinguished by botanists as the Chickasaw or wild-goose plum (*Prunus chicasa*) The native home of this wild species seems to be the South-western States; but Dr. Latham quotes it as occasionally found in Illinois. It is altogether different from the common wild plum of the west (*Prunus Americana*), which has a much less elongate leaf, and differs in various other respects."

The Columbia plum is stated to be round, fully two inches in diameter, and to ripen in August in South Illinois. It is only of the second quality, either for cooking or eating, fetching $10 or $12 a bushel, when the best varieties command $16. The curculio is said to puncture and lay its eggs in this plum as freely as in others, yet the larva that hatches out is almost invariably drowned by the exuberant flow of juice that is peculiar to this variety.

The Miner plum is described as a deep red, round plum, about one and a half inches in diameter, of a firm texture, with a rather tough and thick skin. In Wisconsin it ripens from the last of September to the beginning of October. It is only worth in the West from $4 to $6, when the best cultivated varieties sell for $12 or $16; it cannot, therefore, be deemed even second-rate. Still, on the principle that "half a loaf is better than no bread at all," it may be safely recommended to those who have neither the time nor the opportunity to grow prime fruit.

Greenhouse Pests.

The Mealy-bug and the Red Spider, as we hear from the best authority, will stand any amount of tobacco smoke, while Plant-lice (*Aphis*) are easily killed by tobacco smoke. The Red Spider, however, may be got rid of by exposing the infested plants to the rain, and the Mealy-bug by a wash of creasylic soap, sufficiently diluted not to injure vegetation. Cresylic soap, a very useful agent for the destruction of many kinds of insects, can be obtained from the St. Louis Coal Tar Company, Third Street, St. Louis, Mo.—*American Entomologist.*

A Large Curculio.

In the Canada Farmer of July 15, 1868, p. 215, we mentioned that we had received a specimen of a large snout-beetle, or curculio, from Mr. J. M. Bristol, of Virgil, county of Lincoln, Ont., and that we were unable to determine it. We have since made it out to be a specimen of *Lixus concavus*, Say, who gives the State of Indiana as its locality, but says nothing as to its food or habits. It must now be included in our list of Canadian beetles, and we trust that, in time, its natural history may become fully known to us. It is half an inch long, exclusive of the snout, which is long and curved, of a shining black colour, except where obscured by a thick yellowish down, which easily rubs off on the exposed portions of the body. It is chiefly remarkable for the large hollow at the junction of the thorax and wing-covers, whence it derives its specific name of *concavus* (hollowed).

Toads in Gardens.—In a lecture on "Insect Enemies," lately delivered by Mr. Treat before the Vineland Agricultural and Horticultural Society, the usefulness of toads in gardens was forcibly pointed out. The lecturer advised his hearers to carry all the toads they find into the garden, as they devour immense quantities of insects. A toad will swallow the largest specimen of a tomato worm, although sometimes he will have a hard time of it.

Transformations of Insects.—It is commonly and correctly said that there are four stages in the life of every insect: 1st, the egg; 2nd, the larva; 3rd, the pupa, and 4th, the perfect or imago state. In most insects the dividing line between these stages is well marked, the larva and imago being active locomotive creatures, capable both of eating and discharging fæces; and the pupa lying still all the time and neither eating nor discharging fæces. But in certain great groups, for instance the true Bugs and the Grasshoppers, the pupa is as active and locomotive and ravenous as either the larva or the imago, and sometimes cannot be readily distinguished by the inexperienced either from the former or the latter.—*Am. Entomologist.*

Entomological Annual for 1868.—It is proposed, should sufficient encouragement be given, to publish a Year Book of Progress in American Entomology, to be edited by Dr. A. S. Packard, Jr. Dr. J. L. Le Conte will contribute a chapter on the *Coleoptera*; Mr. S. H. Scudder, chapters on the Butterflies and *Orthoptera;* Baron R. Osten Sacken, a chapter on the *Diptera;* Mr. P. R. Uhler, a chapter on the *Hemiptera* and *Neuroptera*, and the Editor expects to receive aid from other entomologists. It is hoped it will prove a useful hand-book to every one interested in the study of insects. It will be published in 12mo size in the spring of 1869. An edition of five hundred will be printed, provided three hundred names can be secured. Will all entomologists desirous of aiding in the publication of such an annual send in their subscriptions in advance, that the means of publishing such a useful book may be afforded at the outset? Subscriptions, seventy-five cents a copy, received by W. S. West, Peabody Academy of Science, Salem, Mass.

Correspondence.

Emigration, and Hints to Emigrants.

To the Editor.

Many are deterred from emigration to Canada by the ridiculous ideas of our wooden country that have been so generally in vogue in Great Britain. Tales of our biting winters, our endless droughts, and interminable and impenetrable forests, are constantly going the rounds of English periodicals, and are eagerly drunk in by a multitude who delight in perusing the black side of the picture, rather than in sifting the probabilities and applying themselves to the work of ascertaining the true state of affairs, or discarding the exaggerations of the traveller, who, by adding fresh horrors to his tale, hopes to increase his prestige as a *voyageur*. We constantly see articles and correspondence in the public journals advocating immigration, and decrying the action of the respective Governments for their dilatory legislation on this subject. Such statements unfortunately stand upon good foundations; but let us remember that the Legislature is but a cumbrous machine, oiled and run by many engineers, each of whom brings different ideas to bear upon the improvement of the power. There is a way in which we may individually do a great deal to further the cause of immigration. Many, doubtless, of your readers, come from parts of the old, world in which, even after a long absence they are well remembered and respected. If such would make a special point of writing to their old homes, publishing such correspondence in the local newspapers, and set down in plain terms the advantages held out by Canada to the emigrant—the exact state of affairs here—and confute the exaggerated yarns of those whose only object in writing has been to appear great travellers, they would do much to further the cause of immigration, and to help the Government in any steps they might take in the same direction. Depend upon it, the ungarbled accounts of the actual settler, known personally to many of those whom he addresses, and with the evidence of his own prosperity to back his statements, would do more to turn hitherward the tide of emigration than the most elaborate policy of the wisest Government. The course suggested would be mutually advantageous to the struggling classes in the old country and to ourselves. The cry is constantly coming up for more hands, and a better regulation of wages. Every immigrant strengthens the hands of the farmer, regulates the tariff of wages, and is, in the words of a great American statesman, "worth five hundred dollars to the country." Allow me, through your columns, to make a few remarks on this important subject, and briefly to notice several classes of emigrants, throwing out a few hints for their guidance in this country.

First—The farm labourer. Secondly—The emigrant to the back woods. Thirdly—The old country farmer as an emigrant, and fourthly—The emigrant with a limited Capital.

The Farm Labourer arriving at the port or place from which he proposes to start, should at once apply to the emigrant agency, finding out who may have notified their want of such services as he can fulfil, apply and settle, upon a place of service as soon as possible. The man unacquainted with the *modus operandi* of this country cannot expect high wages at first—he must undergo his probation. But he should hardly accept as a farm labourer less than $8 per month in winter and $12 per month in summer, with his board and lodging, allowing that he be a steady, able-bodied man. He must be prepared to discard many old country fashions. At home, where labour is abundant, every man is employed in some special capacity—as ploughman, as cattle feeder, as hedger, &c., but here we require our farm servant to turn his hand to anything and everything according as the seasons change. You are not an efficient farm servant unless you can put your hand to the plough, reap and bind in harvest, chop wood and attend to stock in winter—in fact, be willing and able to take up any job that may be placed in your hands. Devote yourself earnestly to acquire the art of chopping, for that is a necessary work for any Canadian farmer or his man. There is no difficulty in chopping, if you will take the advice that may be tendered by your fellow axemen. If you arrive in winter, and are placed in charge of stock, remember that to do justice to yourself and your charge there are certain essentials that should be carefully borne in mind, namely, warmth, regularity of feeding both as to time and quantity, and, above all kindness. Follow these, and the looks of your charge in spring will be your best recommendation to an increased wage or to a new master. Beware of whiskey, which is the curse of Canada. Not only is the mere habit of intemperance a stumbling-block in the way of progression, and a high road to ruin here and hereafter; but the greater part of the liquor dignified by the name of spirits is here simply an actual poison. Companions, either good or bad, are more easily formed here than in the old country. Men meet more freely, and, owing to there being less restraint upon the intermixture of classes, acquaintances are very much more quickly formed. In a land of strangers, removed from the circle of those with whom probably you and your forefathers have for generations borne a good character, and whose opinion hitherto kept you out of bad company—if you have not made up your mind to work steadily and with perseverance, you have been mad to expend your hard earnings in taking a passage to this country. You have made a fearful step in life, and you can expect no help in a land whose people know naught about you. Look forward, and bear in mind that many of your class have come to this land with an empty pocket, and are now the owners of fine farms, saleable at any moment for $5,000 or $6,000, with a family of educated children around them, and a home made by themselves, the reward of an honest perseverance and an upright course of life.

The Emigrant to the Backwoods. I would advise the man whose intention it is to carve out a home in the backwoods of Canada to spend some time, even if he gets but small recompense for his labour, in the family of a Canadian, to fit himself for the peculiar work and learn to adapt himself to the ways and wants of the life of a backwoodsman. Indeed, a man, be he ever so strong, persevering, and willing to work, can hardly expect to surmount the difficulties to be encountered in a bush life without first obtaining a thorough insight into the ways and means of subduing the forest. By all means, he must become an expert in the swing of the axe, and understand the mysteries of logging, burning, fencing, and then cultivating the rough surface of the hitherto unbroken soil, and make himself sufficiently acquainted with the wants of the settler, shut out from communion with his neighbours for a long time by impracticable roads or deep snowdrifts, so that he may not be surprised inadequately supplied with the necessaries of life. If the emigrant, however, has determined to proceed straight to the interior, the following hints may be of some service to him: Provide more than one good axe. Do not buy poor axes because cheap. Get them from such a maker as Hourigan of Dundas or Henderson of Galt. Take a good grindstone, and bestow upon it great care, keeping it free from grease, and rounded off on the grinding surface. The clothing best adapted for our winters in the woods consists of woollen homespun, such being more durable, warmer and cheaper, than any cloth. For provisions, a good stock of cured pork and a supply of oatmeal and flour, are essentials, and it would be better not to forget to lay in a supply of groceries, &c., before proceeding to a part of the country where dealers in such goods are few and far between.

Provided with good axes and a few generally useful tools, clothing of homespun, a supply of pork, oatmeal and flour, a log shanty to cover your head, a good yoke of oxen, and above all, a stout heart, the backwoods settler may soon transform the howling wilderness into a blooming garden.

The Old Country Farmer as an Emigrant.—There are many tenant farmers in the old country, who under the rule of a harsh landlord or his tyrannical agent, would eagerly grasp any opportunity of emigration that might arise. To such I would say—as to members of, perhaps, the most prejudiced class in Great Britain—remember that there is a great difference between farming in Canada and in the old country. Throw aside your prejudices, and weigh carefully the merits of our system of farming as applied to our own climate and state of progression, and beware how you make light of advice given you by Canadians. I speak advisedly, for I know how Englishmen are apt to regard colonial efforts. Here labour is scarce and wages high. You cannot employ your time to advantage, as has been your custom, in riding around your farms overlooking the workmen. Here you must turn in yourselves and show your men by example how to work.

The Emigrant with Limited Capital.—A little capital will go a long way in this country, if judiciously invested. The frequent failure of this class of emigrants heretofore has caused many to assert that a man had far better sink his capital in the ocean, or at least leave it locked up at home, and commence life here moneyless.

It is true that a great many that have landed in Canada with a certain amount of capital, have found that the small stock of cash which they may posses here, goes so much further than an equal amount at home, that they have justified themselves in a rush into extravagance, had their fling, and sunk into an obscurity from which they seldom arise. But this will not be the plan adopted by men of sense. Invest a portion of your capital in a suitable farm, stock it thoroughly, for no farm will pay unless well stocked; but be careful that these outlays do not exhaust your treasury. I know of no business to which a working capital is more essential than to that of the farmer.

Many of our farmers are now working in Canada on a hand-to-mouth system, that has for years paralysed all their efforts at improvement. They must have a crop every year from all their farm to keep them going. They have not a cent in reserve, and cannot, therefore, give their soil rest, or the necessary manure. The wants of to-day debar the possibility of waiting for a crop, and if a bad year intervene, where are they? They have nothing upon which to fall back in that rainy day; they sink into a depth of debt from which it may take a lifetime to recover. Every day there are excellent chances cropping up to the immigrant with a small capital. There are plenty of farms thoroughly cleared, excellently situated, well provided with wood and water, which have become a drag upon the husbandman, who for years has constantly drawn upon his soil and deposited naught. These may be bought cheap. Let a man who has some capital invest in such a farm, holding back enough that he may not be driven to extremities by a bad season, and devote his time and attention, not to a futile attempt to surpass his neighbours' crops, but to the enrichment of his heretofore impoverished lands, and the general improvement of his farm. Rest assured there is in Canada no better or safer investment for capital. I know of a farm that was bought in the township of South Dumfries for $30 per acre. It was worn out. The purchaser was a man with some capital. After paying cash for and stocking his farm, he invested the residue in securities which brought him in about $300 per annum. For five years he devoted his time steadily to the

improvement of his farm. During the first three years the returns barely paid for the labour. In the fourth and fifth years manure and judicious cultivation began to tell. From that time he put by money yearly, and in the ninth year from the time of his first investment he sold the farm for $70 per acre. Suit your acreage to your purse, and be sure in buying and stocking to leave a large margin upon which to fall back, if crops should at any time force you to wait.

C. E. W.

Notes and Comments.

To the Editor.

SIR,—It is much to be regretted that your valuable journal does not find its way into every farmer's house in Canada. It is not, however, the trifling amount of the annual subscription which excludes your journal from many homes in which it is urgently needed, so much as a contemptible prejudice entertained by short-sighted and crotchetty farmers, who affect to scorn all information which has not been acquired by themselves or their ancestors in the dear school of experience. When men are above being indebted to printer's ink, or their neighbours, for new ideas, it is not surprising that so many should go to the wall. It is astonishing that such a spirit should prevail, and that the improvements and progress which men of broader views are making do not arouse others to enquire and investigate—to go and do likewise.

I was much interested in some of the contents of your January number. It is certainly very encouraging to learn, as we are told in the first article, that Mr. Johnson's "half-rotted sod" produced eight hundred bushels per acre! Most of us, I opine, would be thankful for such a return after a liberal dose of barn-yard manure, supplemented without stint by the usual "artificials."

I was on the point of writing to you for information as to the expediency of winter fattening sheep, instead of oxen, when I noticed the letter of J. M. Do you not think, however, that well saved straw and a few roots would be cheaper than, and yet as good food as clover hay alone, and that access to unsullied snow is a sufficient substitute for water? In this neighbourhood few sheep get anything else in winter wherewith to quench their thirst. In deciding upon the relative advantages of feeding sheep and oxen, it should be remembered that sheep require much less attendance and much less expensive shelter than horned cattle. As none of my neighbours have had any experience in the matter, I shall feel obliged if some one who has will inform me, through your columns, which class of stock he considers the more profitable to winter feed, all things taken into account.

"X. Y. Z." has furnished you with a communication extolling the "dignity of agriculture." I do not intend to call it in question. When the circumstances of the farmer do not impose on him (as, unfortunately, they too often do) the necessity for such a large amount of physical labour as to render him unfit for much systematic thinking, his occupation calls, or should call, into play more of the powers of the mind than any other under the sun. Besides which, he needs, and often exercises, more manual skill than any artisan. The pleasures and advantages which the farmer enjoys are numerous, real, and lasting. They are often dilated upon, and I need not refer to them now. But in fairness it should be remarked that the calling is not without its disadvantages, especially in a new country, and in a climate such as ours. It certainly should not be chosen by a person whose gregarious instincts are very strong. Detained at home by press of work in summer, and blocked in by snow drifts in winter, he becomes shy and taciturn; and when, once in a while, he does go into "society," he is, however well informed he may be, totally eclipsed by the "dry goods clerk," who occasionally condescends to display his material wealth (which is all upon his back), and his brain power (which find its way to his tongue with wonderful facility) at a party in the country.

These drawbacks are, however, small, in comparison with the solid advantages of the farmer's calling.

F. HARMER, Jun.,
Nepean.

Selection of Judges and Officers of Agricultural Societies.

To the Editor.

SIR,—The letter of your correspondent on the "Judgments at Poultry Shows," will bring to the minds of your readers many similar instances of their own personal experience, showing the total want of capacity in many of the judges appointed by our Agricultural Societies, in every class. This arises mainly from the negligence of the Directors of the Societies in not appointing men practically conversant with the duties pertaining to the responsible position of judges at our shows. Much, we know, may be said as to the difficulty of obtaining suitable and capable persons to officiate as judges, who do not themselves compete in the different classes; and also of the lack, in some sections, of men who are properly qualified to act as judges in some particular classes, men, especially, having a knowledge of the points of improved animals. But this difficulty can be overcome, to a great extent, by the arrangement now practised in some counties, of exchanging judges with other societies, thus giving a wider range for selecting men properly qualified.

But, to commence at the beginning of things, our Agricultural Societies, to come up to any fair standard, must give more attention to the selection of their officers. What would be thought of a medical society composed of farmers in general, small lawyers, and grocers? Yet such is the very system worked upon by some "Agricultural" Societies. I know of a Society, whose list of officers, for years, was made up on this principle. Every broken-down merchant and political hack, in a wide extent of country, seemed to be represented in the list of officers of that Society. The result was that the Society's funds were frittered away in ridiculously small premiums, and nobody knew where. Nobody took pains to bring into the county any of the improved breeds of stock, and, as a consequence, the agriculture of that section is an age behind the time. The Society had done nothing towards the creation of a taste for better breeds of stock, and little for the improvement of husbandry in general.

But a change has come over the spirit of their dreams, and the Society has this year at its head an energetic, thorough farmer, with a practical understanding of the requirements of our agriculture, and it is the intention of the officers to agitate the question of devoting the funds of the Society for the importation of a horse for the use of the members; and we may yet see an improvement in the agriculture of the district as rapid in progress as it was slow and backward before.

When members of Agricultural Societies see to electing efficient and capable officers to preside over their affairs, we shall find little cause to complain of the selection of judges to determine and award the prizes, and less in the management of the Societies in general. There is certainly great room for improvement in many Societies in these respects.

W. Y. Z.

Ontario, Canada, February, 1869.

Keeping Ice.

To the Editor.

SIR,—In your issue of 15th February, page 76, I find an article entitled "Preserving Ice," by J. M., in which the writer details the *modus operandi* of preserving ice and building ice-houses. It is not my purpose in this note to enter into any details about buildings fitted to keep ice, but simply to state a few facts, which can be fully substantiated, showing that ice may be kept for several years in any sort of house or shed, provided the ice is well packed around with sawdust. There is to be seen at this date (February 22nd) ice three years old, being the crop of 1866-7, at the residence of Hon. D. L. Macpherson, Chestnut Park, which ice is as sound and good as when first put in; not that age in ice is any advantage, but this goes to show what can be done towards its preservation.

I will briefly describe the whole secret, trusting it may be of some service to dairymen and others, to whom a good supply of ice in summer is important. The house, or rather shed, is of wood, 12 by 14 feet inside measure. It was excavated about 14 inches below the surrounding surface, this space being filled up, or nearly so, with pine saw-

dust, upon which are built the blocks of ice to the required height, filling in all openings carefully with small broken pieces, and leaving all round the outside a space of about ten inches, which is filled up with sawdust and pressed down with the foot, as each alternate tier of ice is built up, with about the same thickness of sawdust spread over the top when the house is filled. There are two Louvre board ventilators one at each end, near the roof, which are always open to admit air, besides a chimney-shaped ventilator over the roof, also open night and day.

The great secret, I hold, is in the sawdust being a non-conductor, and not in the house itself nor its situation. The house here spoken of stands facing the south, fully exposed to the sun the greater part of the day. Straw of any kind I consider a complete nuisance, as it soon rots, whereas the sawdust may be used for a number of years. The only precaution necessary is to see that when any ice is removed, the exposed part is covered up again, and all will be right. Finally, I would say to one and all who wish to keep ice for years, try the sawdust.

Chestnut Park. G. VAIR.

NOTE BY EDITOR.—In the former article above alluded to, straw was recommended not as the best, but as the most easily procured material, always at hand on the farm, and it will answer the purpose nearly as well as sawdust for one season.

Commendatory.

To the Editor.

SIR,—I have read the first number of the CANADA FARMER for 1869, and cannot help making some remarks on the same. I have been a subscriber from the commencement of the paper, and well pleased with all the first series, but I consider the last an improvement on its predecessors, and think it strange the paper is not taken by every householder in the Dominion. I would especially call attention to three articles, which I consider of more than ordinary value. The first, in the stock department, on page 7, "on the Winter Management of Live Stock;" second, "the Culture of the Apple," on page 11; and third, "Entomology," on page 30. I have had each volume nicely bound for 30 cents, and the volume of 1869, will make a more handsome book, as it will be more compact. I am well pleased with the former books, as it is impossible to open one of the five without finding something interesting on agricultural or horticultural pursuits. Had the same facilities been at my disposal in times past, I should now have quite a library. According to my judgment, the price being the same, I would without fear or favour choose the CANADA FARMER to-day in preference to any of the United States journals, excellent as many of those are.

PETER SHISLER.

Bertie, March 5, 1869.

Mr. Simon Beattie.

To the Editor.

SIR,—I see in the CANADA FARMER, Dec. 15, a proposal for getting up a testimonial of some kind to Mr. S. Beattie, for what he has done in the way of importing thorough-bred stock of various kinds into Canada. I believe he has done more in this way than any other single individual, and I am sure many like myself will be happy at having the opportunity thus offered of showing their obligation to Mr. Beattie, which they could not do in any other way.

But I owe Mr. Beattie a debt of gratitude of a different kind, which I have much pleasure in mentioning here. Two years ago my father, Alex. Kerr, of Westminster, who is since dead, in going to Mr. Snell's sale of stock, arrived at the Brampton station of the railway at 11 o'clock p.m., the night before the sale, and in stepping off the car to the platform, it being dark and ice on the steps, and the car still in motion, his foot slipped and he fell between the car and the platform, with his legs across one of the rails. The next moment he would either have been crushed to death or had both his legs taken off, when this Mr. Beattie, who happened to be near, at considerable risk to himself, took hold of my father and drew him up on the the platform, and thus saved his life. I know, if my father had been alive, he would have been happy at this proposal in honour of Mr. Beattie, and I shall be glad to have a small share in it as soon as the course is pointed out.

JOHN KERR.

The Canada Farmer.

TORONTO, CANADA, MARCH 15, 1869.

Agricultural Pursuits.

An evil against which we cannot too often and too clearly speak, is the tendency among the young men of our country to concentrate in our large towns and cities. The vulgar question of "How to make a living" is one which very naturally presents itself to young men at the threshold of life, at the point where they find themselves confronted with the realities of life, and have to fight its battles. With many, it is simply a question of living—of providing food and clothing; with others, who have little fear on this point, it is a question also of how to get on, so as to make their mark in their day and generation. With the former, it is a matter of necessity; with the latter, one partly of necessity and partly of ambition. Both classes, however, have to face the subject of their future calling or avocation; and as the matter affects both themselves and succeeding generations it is a most important one.

The occupations of a city life are admittedly very different from those of a country one, and there are special advantages appertaining to each. We do not complain of men who have special aptitude for commercial, banking, speculating, or other such pursuits betaking themselves to their proper specialty. That is not only becoming, but in most cases essential to success, and generally advantageous to the country. As a rule, no man should go into a business for which he is not fitted and has no special liking. The trouble is that, in too many cases, men will try what they are unfitted for, and consequently fail of success. In this country, a noticeable tendency—as we have intimated—is that of men whose fatherf were farmers seeking to displace the paternal avocation with something—as they suppose—more genteel and more profitable.

Now, we hold it to be a matter for congratulation that we have a fine agricultural country. We have broad and fertile acres, and many of them. As compared with the British Isles, the extent of our country can only be properly characterised by the school-boy's superlative degree, especially if we count in the vast and fertile regions of the Red River and Saskatchewan valleys. No country—other things being equal—could possibly fail to compete advantageously in the race of life, which has a large agricultural population. Cicero said so, and he had far weaker reasons than we could adduce, for the assertion. Our main dependence must be on our agricultural resources, and on the stout hearts and brawny arms that develope them. The pursuit of agriculture, therefore, must with us ever be an honourable and profitable calling, because it is the mainstay of the country, and success lies in its path.

Holding these views, we cannot admit it to be wise or politic for country lads to be sighing after city life. Cities and towns will only bear a certain number advantageously, and when that number is exceeded, the result is most disastrous to young aspirants for "situations," or for "genteel" avocations. It is notorious that the legal and medical professions are becoming overcrowded. In this very city there are many belonging to these professions who can barely make ends meet, and not a few, we fear, who cannot be said to do even that. In some cases this is, perhaps, attributable to want of ability and tact; but the great cause is, undoubtedly, the number who enter those callings. Young men on the farm sigh to themselves—"be not like dumb driven cattle; be a hero in the strife,"—and the inspiration drives them to aim at what they are probably un-

suited for. The daily routine of toil is tiresome. The rewards, though sure, are somewhat slow, and lack the zest and excitement which, it is supposed, accompany other pursuits. And it must be said, too, that many parents are at fault in this matter. They encourage their sons in this idea. Some well-to-do farmers, forgetting or ignoring the safe road by which they attained to competency, look upwards, and seek the luxury of seeing their sons dubbed Rev., M.D. or Barrister-at-Law; or, failing in that, aim at seeing them in neat attire and with soft white hands, counting out money over the Banker's table, or exhibiting to dashing young ladies the latest fashions in dress.

The whole thing is wrong. Farming is not only a useful, important and honourable calling, but it is also a sure and profitable one. There is ample and ready market for all that is produced, and the business is attended by comparatively very few risks. All that is needed, in order to secure competency or even independence, is energy and industry. The farmer is one of the least dependent of men. He is little in danger from the quicksands of trade, the rascalities or whims of men, or the general uncertainties appertaining to the busy marts where scheming and smartness are in full play. Contrast with this the position of the clerk. He is at the mercy of his employer, and may have to be humbly seeking employment several times in a single year, and be glad to get it where he can at from $6 to $10 a week. He lives from hand to mouth, and if, besides saving nothing, he is not preparing the way for business on his own account, he is simply dooming himself to a life of abject dependence, if not sycophancy, and loses all manly self-reliance. John Stuart Mill tells us of the regret he experiences whenever he sees a well-built, brawny fellow dealing needles and laces and trinkets over the retail counter. And admitting that there must be many exceptions in practical life to any theoretical view dictated by the fitness of things, we may well ask, would it not be better—would it not, in many cases, comport better with the manhood of man—to go boldly into our back country and work up a safe and independent business there, than be whining helplessly in crowded cities, jostling among the throng that rush for every "vacancy," or earning but a scanty and precarious livelihood? The prizes in commercial or professional life are attained by but a few, and only those should look in that way who have special capacity, or whom special circumstances favour.

Canada must rely in the main upon her agricultural population, and while there is such ample room, we hope to see our farmers and their sons and their sons' sons apply themselves vigorously to the farming business. The question of immigration is forcing itself more and more upon the attention of public men, both in this country and in Britain, and we are glad it is so; but its main use will be, while relieving the old country of a surplus population, to plant upon our soil a sturdy class of men, to cultivate and utilise our wild lands—men who will not fear honest labour, and who will be the mainstay of the country in peace or in war. Happily we have a country eminently fitted for just such a class of men. Canada proper contains any amount of forest land, and in a short time we shall also have the immense prairie land of the Red River Territory. We shall thus be in a position to offer the immigrant his choice. The Western States have hitherto proved a wonderful attraction to immigrants, and the reason was undoubtedly their prairie land. Most new-comers have but limited means, and can ill afford to spend two or three years in clearing the forest before reaping the reward of their labour. A prairie region admits of immediate returns. The North-West Territory affords all the advantages of the Western States in this respect; and, we doubt not, will ere long, under the wing of the Dominion, attract a large proportion of the stream of immigration from the old country. That is the field for our able-bodied, industrious young men. If they deem the paternal estate too limited or dread going further back into "the bush," let them go to those western prairies, and not to our already overcrowded cities.

Report of the Commissioner of Agriculture and Arts, of the Province of Ontario, for the year 1868.

We have received the first annual report which has been issued from the present Bureau of Agriculture. It has been brought out under the disadvantages inseparable from the first year's operations of a new organization, and of unavoidable incompleteness of arrangements in various departments; but contains, nevertheless, much valuable information, and gives promise of efficient management in the future. The publication makes a thick octavo volume, comprising altogether 272 pages. The report proper is very brief, and adverts to the constitution of the Bureau, the main features of the new Agricultural Bill, and the official operations of the year, which have been necessarily initiatory and to a certain extent experimental. The bulk of the volume is made up of various appendices, of which the first is a catalogue of the library. This is open to the public, and already contains many valuable books, and will in time, it is hoped, be so largely augmented as to become an institution worthy of the Province.

Next follows a very interesting report of Professor Buckland's visit to England, giving an account, among other things, of the Royal Society's Show and other important agricultural exhibitions. There is much in this part of the report that should be suggestive and instructive to Canadians. In particular we would commend the admirable management by which all crowding, confusion and hurry are avoided. This result is mainly secured by allowing plenty of time both in the preliminary arrangements, and for the main object of public inspection. All entries are strictly closed by a certain date, prior to the opening of the exhibition, and ample space and commodation are provided for visitors as well as for stock and implements. An important feature is the trial of implements previous to the award of any prizes. These trials in connection with the Royal Society's show occupied a week, although the competition was confined to implements used in cultivation. Those employed in the subsequent operations of harvesting, threshing and preparing for market, will be tested at the Exhibitions of 1869 and 1870. Much attention was given to steam cultivation, which is yearly gaining ground in Britain, and will doubtless ere long be employed in most of the important operations of the farm. The recent progress in agricultural mechanics generally, has been well illustrated in the history of the Royal Society's Exhibitions. At the first show in 1839, there were only 20 exhibitors of implements; at the Leicester meeting in 1868, the number of exhibitors was 307, occupying 337 stalls, comprising 6,369 articles under a shed 16,700 feet in length, and covered by nearly 50,000 yards of canvas. A very large proportion of these implements are of quite recent invention. The same excellence and progress were manifest in other departments, especially in the show of stock.

We are convinced that in this country, to make our exhibitions practically valuable, more time must be allowed. We agree also with the Commissioner's suggestion, that in many instances an amalgamation of the smaller shows with the larger, so as to diminish their number, and at the same time raise their standard of excellence, would be attended with signal benefit.

Professor Buckland's report goes on to speak of the important matter of the introduction of fresh seed, one of the chief objects of his visit to England; and on this subject he gives some judicious cautions respecting the necessity of careful experiments before investing largely in such ventures, as the difference of climate and other causes sometimes lead to very discouraging results. The importation of seed wheat from Russia, in particular, should be intrusted to a reliable agent in that country, for much of the wheat exported thence is kiln-dried and totally unfit for seed, besides consisting of a mixture of different varieties.

Some arrangments have been made, we are informed, for obtaining specimens of British agricultural implements, and the Messrs. Howard, of Bedford, very liberally granted the loan of a number of their implements for the Agricultural Museum of this Province. The British manufacturers complain very naturally of the high import duties levied on their machinery here, and which no doubt keeps out of this country many most valuable implements, which under a more generous system of legislation would be available to Canadian farmers.

Professor Buckland's report, after adverting to arrangements made by him for the interchange of reports with British Agricultural Societies, closes with some judicious remarks on the subject of emigration, which is now attracting so much attention in Great Britain. He deprecates, as we do most strongly, the introduction into this country of the refuse population of English cities, and the incapable or vicious portion of the pauper burden of the old country For suitable classes of emigrants, however, there are here ample room and great inducements. We most earnestly hope that the Government of Canada will give this subject that careful attention which the present crisis especially and most urgently demands.

An analysis of the reports of Agricultural Societies throughout the Province comes next in the contents of the volume under notice. These accounts are almost entirely confined to financial statements. We are glad to learn that printed forms have been prepared for these reports in future, which will secure fuller information and greater uniformity for the purposes of comparison and analysis.

Next follows a summary of crop returns from various societies; but these, on account of the short notice given, and other causes, are very incomplete. Some more efficient system than any hitherto adopted must be put in practice before we can obtain any general and reliable statistics on this important matter.

Statements and abstracts in reference to Mechanics' Institutes come next in order. A fresh impetus has been given to these useful institutions by recent legislation, and the assistance now offered under certain conditions by grants from the Government will no doubt largely increase their numbers and their efficiency.

The report of the Fruit Growers' Association, which follows, occupies considerable space, and contains much valuable matter. Some of this has already been published in the pages of the CANADA FARMER, but much of it has not been made public in any shape. Of this class is a very valuable report by Mr. Saunders, on fruits in the neighbourhood of London, with interesting notices of a great number of injurious insects. It would be very desirable if these transactions and papers could be printed separately and distributed among the members of the Association, and others interested in the important subjects of fruit-growing.

At the end of the volume is given, in the form of a supplement, a full account of the recent investigation into the financial position of the Board of Agriculture. This matter is now too well known to need any further comment. The facts of the case amply vindicate the course adopted by the Commissioner of Agriculture, and show that he has acted throughout in a manner that entitles him to the thanks of the community. We trust that the new Council of the Agricultural Association will wisely exercise the powers entrusted to them, and that the next report of the Commissioner of Agriculture will show material progress in the most important interest of the country, and the basis of our national prosperity.

The Emigration Question.

There is considerable discussion going on just now in the columns of the press, and among the public in general, as to how we are to obtain some increase to our labouring population, and divert to our country a portion of the tide of emigration, setting in a steady stream from the older countries of Europe to the shores of America. The English journals are also taking up the question, and after showing that every working man in England "carries a pauper on his back," they very considerately, on philanthropical grounds, we presume, propose to relieve the pressure upon their workmen, and the parochial rates at the same time, by sending a few shiploads of paupers to Canada.

There can be no doubt of the fact, that we are greatly in need of steady and industrious labourers to work in the cultivation of newly opened lands, as well as to take the place of a large number of our young men, principally farmers' sons, who most unadvisedly, as we could show, have left the paternal home disgusted at the worse than do-nothing policy of the Canadian Government in the matter of Crown Lands, and gone to the Western States, where land could once be had cheap, and every encouragement is given to the settler in preference to the speculator. Many a farmer now plods wearily alone who once had grown up boys to assist him in his work, and would be but too glad to give a home and helping hand to a steady, industrious labourer, who would be willing to give a fair amount of work for a fair day's wage.

But it would be very unfortunate indeed for us, if under the seeming guise of a blessing, we should find, when too late, that we are receiving a curse, and instead of obtaining labourers to till our fields and help to gather in our bountiful harvests, we are unwittingly taking the weight of the pauper from the Englishman's back to carry it upon our own. To those who have seen the working of the system of parochial relief in England, and the class of persons too commonly supported on public charity, it will be no matter of surprise to learn, that for pig-headed, obstinate laziness, an English pauper stands unrivalled.

We have recently read many articles in the British Agricultural papers on the labour question, and from them we gather that all efforts to improve the condition of the agricultural labourer at home, are in a measure rendered nugatory by his own ignorant prejudices, and that while labour is seemingly cheap, it is found less costly to employ expensive machinery to do the work of the farm, wherever it is practicable to do so.

There is, however, an exception made in favour of the Scottish labourer, and we see it stated that the cost of working farms in Scotland is much less per acre than in England or Ireland, because while a Scotch labourer will obtain double the wages, he actually performs four times the amount of work that an Irish labourer does, and two men on a Scotch farm do all the work that it requires eight men in Ireland to perform. It is an old and true saying that "heaven helps those who try to help themselves;" and while we have no desire to add to our already too large stock of idlers, we could not go far wrong if we were to give a measure of assistance to such of the industrious poor at home as desire to better their condition by coming among us, and at the same time have some small means of their own—enough to place them above losing self-reliance—yet perhaps not sufficient to enable them to come across the ocean with their families, without sacrificing their little all in the effort to reach their new home, and finding themselves in the humiliating position of being obliged to suffer from want, or be treated as beggars. These are the class of persons that we can encourage to emigrate to our shores with a reasonable prospect of their becoming useful to us at the present, and a credit to themselves and their adopted country in the future. They would require to be shown the advantage that would accrue from their taking the step, without, at the same time, being misled by overdrawn accounts of high wages, &c., and to have some direction from a properly qualified agent, who should also arrange all matters of transit for them, and we should have homes ready to receive them on

arrival at their destination. This is substantially the plan pursued by the Australian Colonies to obtain the bulk of the labourers and artizans required to carry out works of public utility, and help to bring under cultivation the agricultural lands, which were sold by the crown to actual settlers only, at £1 per acre; the proceeds to be devoted for a certain time to the encouragement of immigration. They employed well-paid agents at British ports, men of honour and ability, who were careful to see that none but persons of the right stamp were sent out. Half the passage money was paid by the agent, the balance by the passenger. Some such scheme of assisted emigration would be well adapted to the present wants and condition of Canada, and in this way the Government might most profitably expend a portion of the public money.

Notes on the Weather.

February has been colder on the average than January, but is warmer than the average of several years past. There has been an abundance of snow, more than enough and considerably drifted, so that travel is rather impeded than helped. There have been 11 clear days, 17 cloudy days, 14 days on which snow or rain fell. The highest temperature was 49° on the 12th, the lowest 0° on the 27th, the prevailing winds W. and W. S. W. The ground is now covered with snow to an average depth of two feet, and the prospect is that March will prove cold, and spring come in with a sudden and rapid thaw, and as the frost has not penetrated deeply into the soil, we may look for an early and favourable spring.

REGISTER OF RURAL AFFAIRS.—We have just received a copy of this favourite annual, published by L. Tucker & Son, of Albany, N.Y., the proprietors of that sterling agricultural journal the *Country Gentleman*. It is the most perfect thing of the kind yet got up, and we wonder how they can afford to give such a neat volume of 336 pages, with 130 engravings, for so small a sum as 30 cents. We have only had time to glance through its pages. The first article, on the "Culture of Wheat," is alone worth double the price of the book, and the next, on the "Management of Hedges," is good and practical. Then there is "Culture of the Potato," "Rural Improvements," "Strawberry Marketing," "Grape Houses," "Packing Grapes for Market," and about thirty other articles on various subjects pertaining to the farm, garden and household, any one of which is worth the price of the book.

In England many farmers support large families on the produce of six English acres of land, besides paying heavy taxes. Many in Germany do even better than this.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULURAL SOCIETY, ENGLAND.

General Meeting of the Fruit Growers' Association of Canada.

HELD AT HAMILTON ON THURSDAY, THE FOURTH DAY OF FEBRUARY.

The meeting was called to order a few minutes after ten o'clock, a.m., the President, W. H. Mills, Esq., in the chair. There was a very good attendance of members, several from Toronto, London, Paris, St. Catharines, Cayuga, and Niagara, being present

The minutes of the last meeting, which was held at St. Catharines, were read and approved. The President read a short address touching several matters affecting the interests of the Association, and congratulating the members upon the progress already made, and particularly upon the very valuable and instructive character of the report.

On motion of Mr. John Gray, seconded by Mr. George Leslie, Jr., it was resolved

"That Horticultural and County or Electoral Division Agricultural Societies be allowed to affiliate with this Association on payment of two dollars annually, and be allowed to send two delegates to each meeting, and be entitled to two copies of the report of the transactions of this Association."

On motion of Rev. Mr. Burnet, seconded by J. C. Rykert, Esq., it was resolved

"That the Secretary be directed to keep *in retentis* the record of remarks on subjects for discussion at the meetings of the Association, and that he simply enter in the minute book the acts accomplished."

The meeting took up the list of Pears, and proceeded to discuss the merits of the several varieties, with a view to the revision of the list.

BARTLETT; Mr. Burnet, of Hamilton, thought it hardly sufficiently hardy, and would suggest that the *Annanas d'Ete* be cultivated in its place.

Mr. D. Murray, of Hamilton, believed it to do very well about Hamilton, and said it was early, very valuable, and quite as hardy as any other, both on the pear and the quince stock.

Mr. Ball, of Niagara, found it sufficiently hardy, and that if plucked when half grown, and put away in the house, it would ripen well.

ANNANAS D'ETE; Mr. Burnet said it ripened about a week later than the Bartlett, was a superior pear, does not rot at the core. will keep for a considerable length of time, and is a good market pear.

Mr. Leslie, of Toronto, has had better specimens of this variety than of the Bartlett; it is a first class pear, thrifty grower, good bearer, and will stand the climate better than the Bartlett.

Mr. Gray, Toronto, said it was a better pear than the Bartlett, and considered it one of the finest early pears; could not speak of its keeping qualities.

BEURRE GIFFARD; Mr. Leslie, Toronto, thought this the finest early pear, most delicious flavour; has it as a dwarf tree, and it came into bearing at three years of age.

Mr. Gray, Toronto, said this was one of the very best of the early kinds, ripening before the Bartlett; the fruit is of medium size.

Mr. Holton, Hamilton, considered this a fine early pear, ripening two weeks after the Madelaine; it was a very spreading, ugly, slender growing tree, and required very severe pruning.

W. H. Mills, Hamilton, remarked that this was a good pear, of good flavour, a thrifty grower, and bearing young; he had had it as a standard four years, growing in a gravelly loam soil; it was very hardy.

BELLE LUCRATIVE; Mr, Gray—This is the best pear grown. Mr. Ball—Is a good bearer and grower, and an excellent eating pear. Mr. Mills—It is one of the best. Mr. Burnet—In August, when the winds are high, the long stalk of the fruit is apt to break, and the fruit fall to the ground. It should be grown in a well sheltered position. Mr. Holton—For dwarf culture it is one of the best; is a good permanent pear on the quince; it is a rapid grower, as good as Louise Bonne de Jersey.

BEURRE BOSC—Mr. Burnet said that if pruned in the fall the wood suffered from the winter; it was a good pear to eat, but the tree backward in bearing. Mr. Leslie—It stands and bears well in Toronto; quite hardy there, specimens not large. Dr. Cross said it grow well with him at St. Catharines Mr. Holton had very little experience with it; it blights with him; had a tree in his grounds for eight years; then it blighted and died. Mr. Beadle thought it quite tender in the north; it is one of the best pears grown, ripens in October, does not come into bearing as young as the Bartlett, will bear at five and six years. Mr. Freed said it was not desirable as a dwarf, did best as a standard, is a good pear. Mr. Arnold had it on trial at Paris many years, but did not succeed with it.

BEURRE SUPERFIN; Mr. Leslie said it was very much like the Beurre Diel, that he could not say much about it. Mr. Freed thinks it a good pear; has tried it, found it not very sweet; a good keeper, had them until the week before Christmas, quality variable. Mr. Burnet—It is a good pear, like Belle Lucrative in shape and colour; tree tender.

BEURRE CLAIRGEAU; Mr. Springer, of Hamilton, has fruited it for one year; it is a good pear. Mr. Saunders, of London—It is of good size and appearance; have grown it only a short time. Mr. Leslie—It is very tender, dies out very rapidly. Mr. Burnet—It is a good market pear, very showy but coarse-grained, ripens end of October.

BEURRE GOUBAULT; Mr. Gray would not grow it; it is very gritty. Mr. Saunders—Have fruited it, is finer than the Buffam, ripens with the Bartlett. Mr. Holton thinks the flavour not good; it ripens with the Buffam, not worth cultivating, not very early, and comes at a time when there are plenty of better pears.

BEURRE D'AMANLIS; Mr. Gray thought this a very good pear, requires to be severely pruned, medium sized fruit, ripens early in September, tree hardy. Mr. Leslie said that it is a very early bearer, quality medium, fruit showy. Mr. Burnet said the tree was quite hardy; he had not yet fruited it. Mr. Holton said it was much like Beurre Diel. Mr. Freed—The flavour is only middling.

BEURRE D'AREMBERG; Mr. N. Hamilton, Paris, thinks this well worthy of cultivation. hardy tree, good grower. very fine fruit, ripens late in the fall or early in winter, of a vinous flavour, very fair size, larger than Belle Lucrative. Mr. Ball—It is a good Christmas pear, a heavy cropper, fruit requires thinning out. Dr. Cross said it was a hardy late pear. Mr. Smith, of Grimsby, said the fruit was liable to crack, but it was a good pear, the tree a slow grower. Mr. Gray had given up cultivating it; the fruit was very gritty, he would not recommend it. Mr. Murray said it was very coarse and gritty, and ripened late. Mr. Beadle has cultivated it for twenty years, but only as a standard: is very productive, and apt to overload with fruit, so that the pears are small. Has seen it on the quince, where, when well cultivated and thinned out, it grows as large as the Bartlett. Some years it is very good, of a juicy, vinous flavour.

BEURRE DIEL; Mr. Burnet—This variety is very apt to drop from the tree, is a good fruit, can keep until Christmas. Judge Logie—Best late autumn pear, very hardy, good grower. Mr. Holton—It inclines to be gritty, a good bearer, do not call it a good pear. Mr. Freed—Does not think it of very good quality, is a good bearer, and will keep till Christmas. Mr. Beadle—Esteemed it one of the best of the season; quality is variable, and in no way to be compared to the White Doyenne; the tree is hardy, thrifty, and a good bearer; the fruit is always of good size and fine appearance. Mr. Leslie—It grows well at Toronto.

BEURRE D'ANJOU; Mr. Burnet has fruited it many years; is very handsome in appearance, of good flavour, and the tree bears early. Mr. Arnold—It is a very fine pear, ripe in November, a good keeper. Mr. Leslie said it did well at Toronto, a good keeper; tree bore at three years after planting. Mr. Gray had found it slow in coming into bearing, but thought it a good pear. Mr. Saunders had fruited it after four years planted. Mr. Freed preferred it to the Beurre Diel. Mr. Beadle was very much pleased with it.

BRANDYWINE; Mr. Burnet had fruited it; thought it first class, is a new pear, will keep only a short time; but when in prime is very fine; had gathered it on the 19th of September. Mr. Leslie has it in bearing, ripens early in September, poor keeper, tree hardy. Mr. Murray thought it a nice early fruit. Mr. Freed said it was a very handsome pear, but required to be eaten at the very moment it was ripe; would not recommend it. Mr. Beadle had fruited it four or five years; it bore enormous crops, was quite sweet and fine flavoured; the fruit would not keep; he would value the variety much if it should prove to be hardy.

BLOODGOOD; Mr. Arnold would strike it from the list as not worthy of cultivation. Mr. Holton agreed with him. Mr. Leslie said it was mealy and of no use.

BUFFAM; Mr. Leslie said it was a good pear, and should be grown on the pear stock. Mr. Arnold said it was well adapted to light soils. Mr. Holton said the tree was very ornamental. Mr. Burnet had found the fruit to crack on clay soil, though some years it was very good; the tree was inclined to blight. Mr. Beadle said it was one of the few varieties that were peculiarly adapted to sandy soils.

CATILLAC; Mr. Beadle said it was a large long-keeping pear, only fit for cooking. Mr. Burnet—it can only be used for cooking.

DEARBORN'S SEEDLING; Mr. Holton—Is a good bearer, but ripens too late, when there are plenty larger and finer. Mr. Burnet—A good cropper, fruit not stung by curculio; ripens in September. Mr. N. Hamilton, of Paris, thought it a very fine sweet pear.

DOYENNE D'ETE; Mr. Holton said it was the finest very early pear, quality very good, ripens two weeks earlier than Beurre Giffard, thrives best as a standard. Mr. Leslie—It is a good pear, earlier than the Madelaine, does well as a standard and on the quince stocks. Mr. Burnet considered it the finest early pear.

DOYENNE SIEULLE.—Mr. Gray—This is a very good winter pear. Mr. Leslie—Have kept it until Christmas, esteem it a very good variety.

DUCHESSE D'ANGOULEME; Mr. Burnet would rank this as first class. Mr. Martin thought none equal to it on clay soil. Mr. N. Hamilton had not found it to do well with him, though he had given the trees the best of care. Mr. Arnold said it was a fine large showy pear. Dr. Cross had noticed that the blossoms were easily blasted in the spring by unfavourable weather; the fruit was large and showy, but not of the best quality. Mr. Leslie thought very highly of it. Mr. Beadle thought the fruit of very poor quality.

EASTER BEURRE; Mr. Gray considered this one of the best of the season, comes early into bearing, would particularly recommend it. Mr. Murray—It is the best winter pear, keeps well into February. Mr. Burnet had kept it until May. Dr. Cross said it would keep until March, but did not value it. Mr. Arnold never saw one fit to eat, has kept them through the winter. Mr. Beadle has kept them until April, but did not think them worth much.

GLOUT MORCEAU; the testimony of nearly every one was to the effect that this variety is very subject to blight, though the fruit is of fine quality, and a great favourite with some.

A recess was ordered until half-past two. At that hour the President called the meeting to order, and appointed Messrs. Holton, Arnold, Hamilton, and George Leslie, Jr., a committee to examine the fruit on the table and report thereon.

It was resolved, in order to facilitate the business of the meeting, that a vote be taken on each of the several varieties yet remaining in the pear list, without discussion as to their merits, and that they be classified accordingly.

In this manner the pear list was finished, and the list of apples gone over, with the following result:

PEARS.

RECOMMENDED FOR GENERAL CULTIVATION.

1 Bartlett,	2 Belle Lucrative
3 Beurre Diel,	4 Buffam, on sandy soil,
5 Dearborn's Seedling,	6 Doyenne d'Eté,
7 Duchesse d'Angouleme,	8 Flemish Beauty,
9 Grey Doyenne,	10 Howell,
11 Louise Bonne de Jersey	12 Napoleon,
13 Pound Pear, for cooking,	14 Rostiezer,
	15 Seckel,
16 Sheldon,	17 Osband's Summer,
18 Swan's Orange,	19 Tyson,
20 Vicar of Winkfield,	21 White Doyenne,
22 Winter Nelis,	23 Windsor or Bell Pear.

PROMISING WELL.

1 Beurre d'Anjou,	2 Doyenne Sieulle.

FOR FURTHER TRIAL.

1 Annanas d'Eté,	2 Beurre Bosc,
3 Beurre Giffard,	4 Beurre Superfin,
5 Beurre Clairgeau,	6 Beurre d' Aremberg,
7 Brandywine,	8 Catillac,
9 Doyenne Boussoc,	10 Easter Beurre,
11 Figue d'Alengon,	12 Glout Morceau,
13 Golden Beurre,	14 Marie Louise,
15 Oswego Beurre,	16 Passe Colmar,
17 Soldat d'Esperin,	18 Urbaniste,
19 Washington,	20 Columbia,
21 Clapp's Favourite,	22 Edmonds,
23 Payency,	24 Bergamot d'Esperin
25 Archduke Charles,	26 Fulton,
27 Belle Williams,	28 Duchesse d'Hiver,

APPLES.

RECOMMENDED FOR GENERAL CULTIVATION.

1 Baldwin.	2 Duchess of Oldenburg
3 Early Harvest,	4 Early Strawberry,
5 Esopus Spitzenberg,	6 Fall Pippin,
7 Fall Jennetting,	8 Gravenstein,
9 Golden Russet of Western New York,	10 King of Tompkins Co.
	11 Maiden's Blush,
12 Northern Spy,	13 Pomme Grise,
14 Rambo,	15 Rhode Island Greening
16 Ribston Pippin,	17 Roxbury Russet,
18 Red Astrachan,	19 Sweet Bough,
20 St. Lawrence,	21 Swaar,
22 Snow Apple,	23 Talman Sweet
24 20 Ounce Apple or Cayuga Redstreak,	25 Wagner,
	26 Siberian Crab

FOR FURTHER TRIAL.

1 Alexander,	2 Bedeni,
3 Beauty of Kent,	4 Bourassa,
5 Colvert,	6 Canada Reinette,
7 Early Joe,	8 English Russet,
9 Golden Sweet,	10 Hawthornden,
11 Hewley,	12 Holland Pippin
13 Hubbardston Nonsuch,	14 Keswick Codlin
15 Lowell,	16 Lady Apple,
17 Newton Pippin,	18 Primate,
19 Peck's Pleasant,	20 Porter,
21 Pearmain,	22 Red Detroit,
23 Red Canada,	24 Seek-no-further,
25 Summer Rose,	26 Autumn Strawberry,
27 Swayzie Pomme Grise,	28 Tetofsky,
29 Vandevere,	30 Yellow Bellflower,
31 London,	32 Rome Beauty,
33 Domfule,	34 Barton,
35 Saxon,	36 Yellow Newton Pippin.

The committee appointed to examine the fruits upon the table reported that they found several seedling apples, shown by Ezekiel Smith, of Grimsby, all sweet, and possessing no distinctive features to warrant their being disseminated.

Two varieties for a name, shown by A. M. Smith, one a sweet apple, firm flesh, and, apparently, a very good keeper, an improvement on Talman's Sweet. The committee do not know the name, but consider it worthy of cultivation. The other variety is a small, round, red apple, with numerous light dots, name not known to committee.

Some samples of Northern Spy, Golden Russet, King of Tompkins County, and Rhode Island Greening, were shown by Mr. Woolverton, all fine specimens, except the Greenings.

Some medium samples of Baldwin and Newton Pippin, shown by Mr. Ball.

Five seedling apples, shown by Mr. J Cowhead, of Brantford—No. 1 is considered good for cooking, though the sample having been frozen, the committee could not say definitely.

No. 2 did not seem to possess anything to recommend it.

No. 3 was of peculiar flavour, and worthy of trial.

No. 4 is very good, long keeper, tree said to be very hardy and a great cropper. The committee consider it a very promising apple, and well worthy of extensive trial.

No. 5 has a pleasant sub-acid flavour, but not superior to other apples of same season now in cultivation.

Also, three very fine specimens of Northern Spy, shown by the President.

A sample of Prince's St. Germain Pear was shown in a bad state of preservation.

Moved by Mr. Holton, seconded by Mr. A. M. Smith,

"That whereas it is desirable to encourage the propagation and introduction of seedling fruits of merit, suited to the climate of Canada,

"Be it therefore resolved that the sum of FIFTY DOLLARS be given by the Society for the best new seedling late winter apple; THIRTY DOLLARS for the best seedling harvest apple, and TWENTY DOLLARS for the best seedling autumn apple—these to be at least equal to the old popular varieties now in cultivation.

"Successful exhibitors shall place at the disposal of the Society scions of the prize fruit for distribution among its members, to gather with such information as to soil, location, growth of tree, &c., as the committee appointed by this Society to make the award may require."

Also resolved, "That George Leslie, D. W. Beadle, and the mover, be a committee to whom all such fruits shall be submitted, and who shall examine and report to the Society from time to time the results of their examination." Carried."

On motion, adjourned to 7 30 o'clock, p.m.

EVENING SESSION.

This session was first occupied in discussing the methods of gathering, packing, and preserving apples. Mr. O. T. Springer, who has had considerable experience, says that he picks and handles carefully his winter apples, packs them in clean barrels, heads them up, and then places them on their sides, keeping them in an out-shed as long as they can be left without danger from freezing, and then places them in a cellar that is as cool as possible, and at the same time free from frost.

Mr. Latshaw, of Paris—The picking should be very carefully done, when the fruit is dry, always gathering the fruit from the lower limbs first, and progressing upwards until all are gathered, packed into barrels as gathered, sorting the fruit carefully, and allowing no leaves to get into the barrel.

Several other members expressed similar opinions with regard to the best modes of gathering and preserving winter apples.

The Roxbury Russet and Golden Russet, of Western New York, were mentioned as being the best of the long keeping sorts. The Esopus Spitzenberg was considered by all to be one of the very best of the winter apples, being of fine appearance and superior flavour, but not a variety to be planted for profit.

A lengthened conversation was had upon the habits of certain insects injurious to fruit trees and fruit, in which much interesting and useful information was imparted by Mr. Saunders, of London, Entomologist to the Association.

It was moved by Mr. Burnet, seconded by Mr. Saunders,

"That the best thanks of this Association are due, and are hereby tendered, to Thos. Swinyard, Esq., Manager of the G. W. Railway, for his courtesy in granting the members return tickets over the road at quarter fare." (Carried.)

On motion of Mr. Burnet, seconded by Mr. Arnold, Resolved,

"That the Hon. J. Carling be elected a life member of this Association." (Carried.)

On motion of Mr. Arnold, seconded by Mr. Saunders, it was resolved.

"That the thanks of the Association be returned to the County Council of the County of Wentworth for the free use of their Council Chamber, for the purposes of this meeting."

At 10 o'clock p. m. the meeting adjourned

Meeting of the Directors of the Fruit-Growers' Association of Ontario.

Present—W. H. Mills, Esq., President J. C. Rykert, Esq., Vice-President; Rev. R. Burnet, Chas. Arnold, J. R. Martin, W. Saunders, Lewis Springer, A. M. Smith, and the Secretary.

Minutes of last meeting read and approved.

Communication from Mr. J. Freed, respecting the offering of premiums for Strawberries was read.

Resolved, that it is inexpedient to adopt the suggestions contained in Mr. Freed's communication at present.

Resolved, that the President and Vice-President be requested to lay before the Commissioner of Agriculture the importance of obtaining an Annual Report on the subject of insects injurious to fruits and grains by a competent entomologist.

Resolved, that a prize of THIRTY DOLLARS be offered for the best essay on the cultivation of the Raspberry, Blackberry, Strawberry, and Currant, and a further prize of FIFTEEN DOLLARS for the second best essay. Each essay not to exceed eight printed pages, octavo, and to be forwarded to the Secretary. D. W. Beadle, Esq., at St. Catharines, on or before the first day of September next. Each essay to bear a motto, and to be accompanied with a sealed note having the motto endorsed upon the outside, and containing within the name of the author of the essay.

Resolved, that Messrs. W. L. Copeland and W. J. McCalla, of St. Catharines, be appointed Auditors of the Treasurer's accounts, with the request that when they have completed their audit they report in writing to the President.

Resolved, that the summer meeting of the Association be held in Galt, at a time to be fixed by the President, and that the subjects for discussion be the small fruits.

The Western New York Fruit Growers Society.

This society held its winter session in the city of Rochester on the 27th and 28th of January.

After the election of officers for the ensuing year, the following questions were adopted for discussion, namely:

1. What variety of quince is worthy of cultivation?

2. Can the cultivation of the gooseberry be made profitable?

3. What varieties of the gooseberry are worthy of cultivation?

4. What species of deciduous trees are most desirable to plant for shade and ornament, or timber?

5. What species of evergreen trees are most desirable for planting for ornament or protection?

6. Can the cultivation of the plum be made profitable?

7. What varieties of plums are most profitable for market?

8. What varieties of plums are best for the amateur?

9. Should the originators of new varieties of fruit be protected by law, in the same manner as inventors?

10. Is it more profitable to raise prolific fruits or high flavoured fruits?

11. What is the best material and form of trellis for training grape vines?

12. Is there any efficient and inexpensive mode of exterminating the canker worm?

It seemed to be the prevailing opinion that the best variety of quince was the well-known apple-shaped or orange quince, although no vote was taken.

With regard to the cultivation of the gooseberry, so much difficulty had been experienced from mildew, and of late years from the gooseberry saw-fly, which stripped off the foliage and destroyed the plants, that evidently not much attention had been given to the cultivation of this fruit, and nothing definite was arrived at upon the second and third questions.

The fourth question excited considerable discussion. The suggestion was made by Mr. Hooker that our forests should be regarded not as a thing to be preserved but to be renewed, and the timber regarded as a crop to be taken off when at its proper stage of growth; in short, that timber should hold its place in the greater cycles of rotation of crops.

The native elm was thought to be one of our most graceful and desirable ornamental trees; also the sugar maple, especially when planted in clumps; and the silver-leaf maple for planting singly. The Norway maple was highly esteemed as a beautiful species that grew rapidly. The tulip tree was very much admired, but it was difficult to transplant it. The different varieties of the linden or bass-wood were held in much esteem, particularly by bee fanciers. The horse-chestnut was mentioned as being suitable for lawns. The European larch was very highly spoken of as a rapid-growing and beautiful tree, and at the same time very valuable for timber. The locust was also very valuable, but of late years had been almost destroyed by the locust borer. One gentleman remarked that land worth fifty dollars per acre was too valuable to be planted with timber. One crop of wheat had returned him more money to the acre than the wood which he had cut from the same land, that had been a century in growing. Another suggested a material difference in the value of wood as fuel, and that which was truly termed timber, and suited to more valuable purposes.

In response to the 5th question, it appeared that the Norway spruce was the general favourite. Some favoured planting wide belts, and others only a single row, as a protection from the prevailing high winds. All agreed as to the beneficial effects of such a screen or wind-break, and the subject of planting for ornament was lost sight of in the more pressing thought of planting for shelter.

The 6th, 7th, and 8th questions were considered together, and no very definite conclusion reached. The old enemy of the plum, the curculio, came in for his share of consideration, and various methods of killing or driving him away were suggested. One gentleman thought he had succeeded in so offending his nostrils by placing corn-cobs soaked in coal-tar in the trees, that he left in disgust. The black knot also received attention, and the old question whether this was caused by the curculio was revived. That it is not caused by the curculio is now the more generally received opinion.

The 9th question elicited quite an animated debate. The proposition that he who expends time, thought, labour, skill and means in the production of a valuable new fruit, ought to be protected by a patent as justly as he who produces a new machine, was well and forcibly put. But the majority of the members, while admitting that the originator of a new and valuable fruit deserved to be rewarded, maintained that it could not be done by patent. Some maintained that the honour of being the originator of a popular new fruit was sufficient remuneration, and others favoured the granting of Government bounties to the originators. No definite action was taken on the question.

The tenth question was considered at some length, and the general tone of the meeting evidently favoured the growing of the more choice varieties of fruit. It was suggested that if these varieties were grown by all fruit cultivators, the quantity thrown on the market would be so great that the price that could be obtained for the highest flavoured fruits would be no greater than for the more prolific sorts. To this it was replied by Mr. Hogg, of Lockport, that the demand for the best fruits had fully kept pace and would keep pace with the supply, and he stated that the Delaware grape now sold for twice as much as it did ten years ago. Mr. Crane had kept an accurate account with two rows of Concord grape vines and two rows of Delawares, and found that the Delawares returned him twice as much as the Concords. Another suggested that very much depended upon the manner in which fruit was put up and sent to market, and that often by careful selection a high price can be obtained for one half or less of the fruit in a barrel, when the whole would hardly sell at any price.

The eleventh question was left undecided. A couple of gentlemen occupied the time in describing how they made trellises for grape vines. One of them had just patented a new spiral trellis

The discussion of the twelfth question made very apparent the fact that many intelligent fruit growers knew very little about entomology. The same insect was spoken of under names indicating several distinct species, and diverse species were spoken of as one and the same insect. The meeting very wisely appointed a committee of five, charged to obtain all the information possible in relation to the canker worm and all other varieties of worms that prey upon fruit and shade trees, and the best means of prevention or destruction, and report at the next meeting of the Society.

There was a fine collection of winter pears exhibited by Messrs. Ellwanger & Barry, of Rochester, embracing twenty-five varieties. There were also some horticultural implements, and boxes and baskets for packing grapes and berries for market, on exhibition, which attracted considerable attention.

Toronto Horticultural Society.

The Toronto Horticultural and Botanical Gardens Society held its annual meeting on Tuesday, Feb. 16, in the Mechanics' Institute, Toronto—the President, Hon. G. W. Allan, in the chair.

The Rev. E. Baldwin read the report, which showed that the sum of $157 90 had been added to the balance of $217 12, with which the past year was commenced, so that the Society begin this year with a balance on hand of $374 02, the gross receipts being $2,765 01, while the expenditure was $2,390 02.

After the adoption of the report, the following officers were elected:—

President—Hon. George W. Allan; 1st Vice-President, Mr. James Fleming; 2nd Vice-President, Mr. P. Armstrong: Corresponding Secretary. Mr. W. S. Lee; Recording Secretary, Mr. J. A. Simmers.

DIRECTORS—Rev. E. Baldwin, Messrs. T. D. Harris, George Leslie, sen., Professor Buckland, J. A. Simmers, George Vair, S. Platt, W. Ince, J. Paterson, J. Grey, F. W. Coate, J. Gibson, Isaac Gilmour, J. Forsyth and Alex. McNabb.

AUDITORS—Messrs. F. Small and G. W. Buckland were appointed Auditors for the ensuing year.

Unleached Ashes for Orchards.

A subscriber, writing from Hamilton, enquires whether ashes would be injurious to orchards if applied unleached. In reply, we would say, there is no objection whatever to the use of unleached ashes, only they must not be applied in as large a quantity at a time as leached ashes. Our correspondent's orchard being in sod, he might spread on the unleached ashes at the rate of sixty bushels to the acre, early in the spring, and carefully plough the sod under, cutting a thin slice not more than four inches deep, and allow it to decay. This will form an excellent top-dressing for his orchard.

Potato bugs have become very numerous and destructive in Ohio. Mr. A. C. Larcomb, of Portage, in that State, from less than an acre of potatoes, killed *four bushels of potato bugs* by actual measurement.

We know a cultivator who had heavy crops of plums for seventeen years in succession, his swine for these seventeen years, without a season's interruption, being allowed the run of the yard.—*Country Gentleman.*

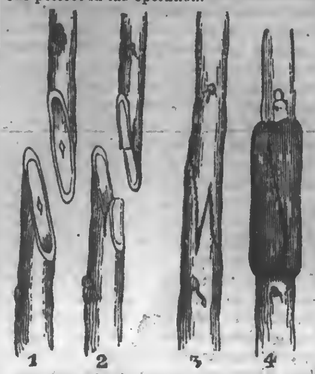
Grafting.

Enquiries on the method of grafting have been so frequently repeated lately, that although an article and illustrations on the subject were given in the last volume of the Canada Farmer, there is no doubt that the following directions, which, together with the accompanying figures, are taken from the *Rural World*, will be acceptable to many of our readers.

In the early settlement of the country, fruit trees were generally propagated from seed. But trees propagated in this way, from kinds however good, gave no assurance that the seedling trees would produce fruit with the good qualities possessed by the parent. New varieties are thus produced, but generally, where one seedling tree produced fruit equal or superior to its parent, many would prove inferior, and frequently they are so degenerated that they are worthless. In order to obviate this difficulty, and to propagate those kinds only that are worthy of cultivation, grafting and budding are resorted to. Grafting was understood by the ancients. Fifty or more different methods were practised by the Romans. But since the demand for fruit trees in this country calls for them by thousands, but two different modes of grafting are generally practised, and these are such as can be performed with the greatest facility.

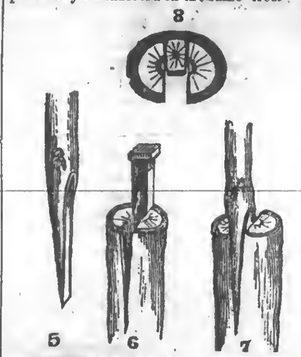
The most common method of grafting apple trees now practised by extensive nurserymen is to sow the apple seed either in the fall or spring. The seedling, on good land and properly cultivated, will, by fall, be large enough to graft. These are taken up and packed in the cellar, and the business of grafting is carried on through the winter. The grafts are packed in boxes, mixed and covered with moss, pulverized rotten wood or light earth, and placed in the cellar until the season of setting out arrives in the spring. Roots, grafted in this way, are cut into two or more pieces, according to their size and length, each piece forming a root for an individual tree.

If the graft is set in the stock or root, so that the sap may flow upwards without interruption, and that which is elaborated by the swelling bud and leaves may flow freely downward through the inner bark, the union is surely and readily formed. In order to secure this, certain requisites are to be regarded, the first of which is, that the operation be performed with a sharp knife, so that the parts may be cut smoothly, without mutilating the pores or sap vessels, and the two parts be brought into immediate and even contact. Secondly, that the parts be so brought together that a permanent and considerable pressure be applied to keep the parts in their proper places. Thirdly, that the union of the inner bark and the wood, both of the graft and the root, be brought together, so as to exactly correspond. Where the graft and the stock are not of the same size this union must be secured on one side. With a correct knowledge of the requisites for grafting, a little practice will soon make one perfect in the operation.



Formerly, the stocks at one year old were set in the nursery rows and cultivated one year, and then grafted at the surface of the ground. It is contended by some that trees propagated in this way are better and longer lived than those that are root grafted. Our experience does not enable us to answer this question. The last is a more tedious and expensive operation, and can only be done in the spring, when other operations are pressing. In some nurseries stocks are set in the way we have mentioned, and budded in the fall at a comparatively more leisure time.

Another method of grafting is extensively practised in seedling orchards, by removing the large limbs and inserting grafts in their stumps, or where it is desirable to have specimen fruit. A great variety of apples or pears may be inserted in the same tree.



The figures we give above will illustrate the various methods now generally practised in grafting fruit trees. Figs. 1 to 4 represent the successive stages of what is termed whip or tongue grafting, from the sloping cut of the graft and stock or root to the completion of the operation by binding. In practising this method of grafting, with one clean cut we make the proper slope, and, by reversing the knife, one cut downwards completes the tongue. In making the tongue, the cut downwards should be deeper than is represented in figures 2 and 3; it should be at least three-quarters to one inch deep. This increased depth adds greatly to the strength of the parts united. Figures 5, 6, 7 and 8 represent the respective parts of what is termed cleft-grafting, such as is usually employed in stocks planted in the ground, and in renewing the heads of old trees. Figure 6 represents the stock, opened with a wedge, ready to receive the graft. Figure 5 represents the wedge shape of the graft to be inserted, and figure 7 illustrates the graft in its place after the wedge has been withdrawn. It is only large stocks that require to be opened by a wedge. Nursery stocks are always grafted while they are so small that the graft itself will open the cleft. Figure 8 shows a cross section of the cleft graft. It will be seen that the graft is cut thicker on the outside than on the inside, in order that the points of union at the bark may fit the more firmly.

In figure 4 the band is represented. Our method of binding is somewhat different, and may be performed with great expedition.

Take a piece of board with a planed surface, a yard long and nine or ten inches wide; draw a line with a pencil the entire length four inches from one edge, and draw another four inches from the first. These indicate the length of the bands. Along the edge of the board and along each line lay on with a brush a strip of grafting wax one inch wide. For making the bands provide common cotton cambric, worth 25 cents per yard. Draw the end of the cloth even with the second line made on the board, and stretch the cloth and press it on to the wax, so that it will adhere, and cut off the piece with a knife, even with the edge of the board. Then apply a coat of grafting wax one inch wide along the two edges of the cloth, and one inch wide on each side of the middle line. Then, with a sharp knife, across the board, cut the cloth into strips half an inch wide, and then draw the knife lengthwise over the middle pencil mark, cutting the bands into two lengths of four inches each. By a gentle fire the wax is kept at a proper temper, and the bands may be taken from the board as the binding proceeds, and applied to the grafts with the greatest facility.

When the stocks were of good size and the grafting well performed, we never found any great benefit from binding.

Grafting wax may be made by melting together about equal parts of beeswax, tallow and rosin; or the proportion of wax may be reduced for the sake of economy, and the rosin and tallow supplied in proportions that will give the proper temper to work readily and adhere well.

Camellia Count Esterhazy.

We present our readers with an engraving of a beautiful Camellia, from a plant in the collection of the Hon. D. L. Macpherson, Chestnut Park. Mr. Vair gives the following brief description of this new variety:—The habit of the plant is vigorous, leaves medium-sized; the colour of the bloom is a reddish crimson, deeper towards the margin: petals slightly veined or reticulated. But the great attraction is in the peculiar screw-like formation of the bloom itself, as will be seen by referring to the engraving.

Annual Report of the Fruit Growers' Association.

We would call attention to this very valuable report, which will be found as Appendix G. to the report of the Commissioner of Agriculture. It occupies something over fifty pages, and contains the constitution and by-laws of the Association, the President's address at the annual meeting, the prize essay on the cultivation of the apple, an article on hybridizing and crossing the grape, and another on the apple worm; a report on the Philadelphia raspberry, report on Mr. Bishop's Canadian seedling strawberry, besides reports on the different varieties of fruit from twenty different parts of the Province. It should be in the hands of every cultivator of fruit in Ontario. Every member of the Association is entitled to a copy of the report, and it alone is well worth the small annual member's fee of one dollar. Any person can become a member by sending to the Secretary, at St. Catharines, an intimation of his desire to do so, and enclosing the sum of one dollar. Every one interested in raising fruit will find himself well repaid by the information obtained in regard to the growing of the different kinds of fruit, and the best sorts to grow. Several meetings are held during the year in different places, and any place represented by twenty-five members is entitled to have a meeting held there, if desired. Hitherto the meetings have been held only in Hamilton, Toronto and St. Catharines, but as members increase in different sections of the country, the meetings will be held in other places. We expect that this Association will soon number among its members all the lovers of fruit in Ontario, and that it will prove of incalculable benefit in developing the fruit-growing capabilities of our Province.

The Nova Scotia Fruit Growers' Inter-Provincial Prize.

To the Editor.

Sir,—At the annual meeting of the Nova Scotia Fruit Growers' Association and International Show Society, held yesterday, I was instructed to forward to you for publication the accompanying report of the gentlemen who were judges on collections of apples competing for the Inter-Provincial prize at the late Exhibition in Halifax.

As a letter has recently appeared in The Globe on this subject, and one very desirable object in the Confederation of the Provinces of the Dominion is that we should become better acquainted with each other, and with the resources and capabilities of the respective Provinces, I may be permitted to add a remark or two with reference to this Exhibition and competition, more especially

as it is hard for many, who have not personal acquaintance with Nova Scotia, to believe that we have made such progress in fruit cultivation as will enable us to compete with other parts of the Dominion, or that our climate and soil will admit of it.

Allow me to say, then, that under an arrangement with Mr. Kilborn, the exhibitor of the Ontario collection, I took charge of the fruit on its arrival, unpacked it myself in the Exhibition Building, and had it carefully arranged and well placed, in the same court with the Nova Scotia collection, and that the apples were in perfect order.

The judges appointed were Charles E. Brown, Esq., of Yarmouth, a gentleman who occupies the foremost place in that county as an experienced and successful cultivator of the finer sorts of fruit; Robert W. Starr, Esq., of Cornwallis, who is second to no one in this Province as a critical judge of apples, and who for several years past has devoted a good deal of attention to their nomenclature and classification; and Alfred Saunders, Esq., late Secretary of the Royal Horticultural Society of the Island of Jersey, and now residing in Halifax. Only one of these gentlemen is a member of the Fruit Growers' Association, or in any way connected with it.

I think it will be admitted that from such a jury an intelligent and impartial award was to be expected; and while regretting any disappointment that may be felt in any quarter as to the result of the Exhibition, I am quite confident that no person who saw and examined the collection in Halifax will say that there could be any question as to the justness and propriety of their decision.

We can, and do, raise superior fruit in Nova Scotia, and in considerable quantities. It may be, however, that with longer notice, and more careful and extensive preparation, a collection of apples can be got together in Ontario which will entirely outshine anything we can produce. The fruit-growers of Nova Scotia will be happy to meet their brethren of Ontario at any future occasion in friendly and honourable competition; and whatever party bears away the palm next time, at least the great advantage will result that we shall be becoming better acquainted with each other, and doubtless be better friends in consequence.

JOSEPH R. HEA,
Sec. F. G. Association.

Wolfville, N. S., Jan. 20, 1869.

JUDGES' REPORT.

To the President of the Nova Scotia Fruit Growers' Association and International Show Society.

SIR,—We, the undersigned, appointed by the Council of your Association to examine and report upon the collections of apples in competition for the prize of one hundred dollars and a gold medal, offered for the "best collection of apples from any Province of the Dominion," having carefully examined the same as regards number, size, perfection and quality, beg leave to report as follows:

We find but two collections entered—one from Ontario and one from Nova Scotia. The one from Ontario numbers about sixty sorts. That of Nova Scotia contains over two hundred varieties.

In the comparison of standard varieties common to both collections, we find that those grown in Nova Scotia are much the largest and finest in the majority of cases, while in *some* instances the flavour of those from Ontario was superior to the others.

Of the described and recognized varieties there is a much larger proportion in the Nova Scotia collection than in that from Ontario. The number of standard or recognized varieties described by the American pomologists, Downing, Warder, Thomas, &c., contained in the Ontario collection, was about twenty sorts, while Nova Scotia had nearly ninety. Of those marked in their respective lists as native varieties and seedlings, Ontario showed eighteen, few of which were worthy of notice; and Nova Scotia about forty, many of which were superior both in appearance and flavour. The remainder of the Ontario collection was made up of medium and small-sized kinds, some of them very inferior in flavour and appearance, with apparently local names; but, in some instances, the names of superior fruit wrongly attached.

In the Nova Scotia collection, twenty-eight sorts were labeled with the growers' names only, being (as was explained to us) the produce of young trees imported from New York, and the names lost; some of these were very fine in appearance and flavour; the remainder appeared to possess local names, some of them being well known in the country.

In the comparison of the same sorts in the two collections, we find Northern Spy and Snow-apple equal in size and colouring, while the Ontario Snow-apple has the highest flavour. King of Tompkins County, Rhode Island Greening, Blue Pearmain, Talman's Sweet (misnamed Danvers Sweet, see Warder p. 557), Twenty Ounce Pippin (misnamed Baldwin, see Warder, p. 461), and Gloria Mundi (misnamed white Spanish Reinette, see Downing, p. 214), of the Ontario collection, were much smaller, and in other respects not better than those grown in Nova Scotia. Ribston Pippin, and Yellow Bellefleur, of the Ontario collection, were quite small and inferior in appearance, while those of Nova Scotia were very large and well grown. The Gravenstein from Ontario, although much the smaller, was beautifully coloured and exceedingly high flavoured.

Of other varieties worthy of notice in the Ontario collection, we find Twenty Ounce Pippin (which seems to be the Twenty Ounce or Cayuga Redstreak of Downing and Warder), and Ramsdell's Sweeting, very large, good flavoured and handsome; Fall Pippin, and Black Detroit, large and fine; Yellow Newtown Pippin, Seek no Further, Butter Apple, Vandervere, Spitzenberg, Branslaugh's Seedling No. 4, and Fleming's Seedling No. 3, were of good medium size and flavour. Out of the numerous small sorts we only select two as worthy of particular notice, namely, James' Dessert, and Corwin's Winter Russet, both rich, and of high flavour.

In the Nova Scotian collection we find, of noticeable varieties, in addition to those already mentioned, the Emperor Alexander, Blenheim Pippin, Pound Sweet, Mammoth Russet, Broadwell, Early Bough, Keswick Codling, Dutch Codling, Sweet Russet, Drap d'Or, Golden Globe, Golden Ball, Canada Reinette, Colvert, Swaar, Hutchings' Seedling, Pumpkin Sweet, Golden Sweet, Cat Head, Ox Apple, and Micmac, which are large to very large, and many of them fine flavoured.

From the medium sized we select Autumn Strawberry, Porter, Williams' Red, Saxon, St. Lawrence, Munson Sweet, King of the Pippins, Calville Rouge, Early River, Autumn River, Rambo, Court-pendu-plat, Hubbardston's Nonsuch, Malden's Blush, Æsopus Spitzenberg, Flushing Spitzenberg, Minister, Lyscom, Baldwin, Herefordshire Pearmain, Concord Pearmain, Delaware, Harvey, Striped Gilliflower, Summer, Bellefleur, Nonpariel, Roxbury Russet, Golden Russet, Hunt's Russet and Norfolk Beaufin, as well known standard varieties. From those marked native sorts, we select Calkins Pippin, Early Calkins, Sweet Calkins, Bishopsbourne, Sweet Redstreak, Morton's Red, Fall Pippin, Sandford's Blush, Port Wine, Johnson's Red, Jackson's Fancy, Pierce Apple, Pudsy Apple, Bellevue, Stair's Seedling, Black's Red, Segee, Willoughby, Margaret Pippin and Christmas Sweeting, for size, appearance and flavour.

Among the unknown varieties we particularly notice the kinds labelled Greenough, Lawson, W. Eaton, Ross, North, Harris, Woodworth, C. Sandford, Barss, Manning, Wilson and Dickie, as being large, handsome apples. We also notice a few of those small varieties which, although not profitable to the producer, rank high with the connoisseur as dessert fruit, namely, Pomme Grise, Golden Pippin, Royal Pearmain, Golden Reinette, Court of Wick, and Pomme d'Api.

In conclusion we would remark that, on the whole, the collection from Ontario cannot be considered a superior lot of apples, coming as they do from what we have always been led to believe was one of the best fruit-growing districts of the Dominion.

We, therefore, in view of the results of our comparisons—first, by number of kinds; second, by standard varieties; third, by identical sorts in the two collections; fourth, by size, appearance, and marketable value of the remaining kinds—have not the slightest hesitation in awarding the prize given by your Association, to the collection from Nova Scotia.

Given under our hands at the Exhibition Buildings in Halifax, this eighth day of October, A.D. 1868.

(Signed)
C. E. BROWN.
R. W. STARR.
ALFRED SAUNDERS, } Judges.

Book Notices.

THE TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY, [BOSTON] for 1868, forms a very neat pamphlet of over one hundred pages, containing some very interesting information.

From the report of the committee on fruits, by W. C. Strong, Esq., our esteemed friend of earlier years, we learn that Hovey's seedling strawberry yet maintains its position among market men, but that the Wilson is steadily gaining upon Boston prejudice. The Jucunda gained friends last year. Agriculturist was unproductive. The new seedling raised by Hon. Marshall P. Wilder (considered worthy of being named "President Wilder") is reported "of largest size, superior in quality, beautiful in appearance, and firm enough for market purposes."

Cherries were scarce. Among currants the La Versaillaise is first on the list, yet this fruit is reported as becoming scarce in Boston market and enhanced in price. In raspberries, the Knevitte Giant "is the leading and prize kind." This fruit is also scarce and very high. The culture of the older sorts of blackberry is decreasing, and the newer varieties not yet exhibited. The Mountain seedling gooseberry was first among American kinds. In pears the Doyenne d'Ete appeared 1st of August. Beurre Giffard took the first prize on the 15th of August. Rostiezer was best August 29th and September 5th. At the monthly exhibition on the 10th October the best dish was Sheldon; second, the Urbaniste; third, the Beurre Bosc. On the 14th November, the award for winter pears placed Caen de France first, Lawrence second, and Beurre d'Aremburg third.

There was an excellent crop of apples. The Williams received the first prize for summer, Gavenstein for fall, and Northern Spy for winter. In grapes, notwithstanding an extremely unpropitious season, there was a fair exhibition. The lowest wholesale price for Concords, of fair quality, was $12 per hundred pounds. The Framingham was reported identical with the Hartford, or so nearly so as to be undeserving a separate name. The "Main" is again pronounced to be only the Concord, and not a new grape at all. Israella and Adirondac took the prize as the best early grapes, September 11th. Arnold's new hybrid grapes were exhibited by Rev. W. H. Wilcox.

A special prize of sixty dollars was given to the pear "Clapp's Favourite," after a trial of five years, as the best seedling pear.

The report of the committee on plants and flowers is by Mr. J. C. Hovey, but there is very little in it of interest to the general reader. If in addition to stating that the first prize for the best collection of forty varieties of hardy perpetual roses was awarded to J. C. Chaffin, the worthy chairman of the committee had mentioned the names of those varieties, we should have been able to have informed our readers which roses were held in most esteem among Boston rose fanciers. The Gloire de Nancy geranium is mentioned as being one of the best double flowered varieties yet introduced.

From the report of the committee on vegetables, by C. N. Brackett, we learn that the General Grant tomato is early, productive, solid, and of fine flavour, and received the first prize over all others for two successive years, and that so far as can be affirmed from a single year's experience, the Early Rose Potato is the most promising early potato of the finest quality, and wonderfully productive.

The report of the committee on gardens is exceedingly interesting, and from reading it we infer that this Horticultural Society has a standing committee whose duty it is to visit such gardens as are brought to their notice, under certain regulations, and to recommend the award to the proprietor of any of these gardens of such sum as they may think to be merited by reason of any feature in the cultivation, or of any particular skill displayed or success attained. For example, the committee award to Col. Wilder twenty dollars for his successful experiments in hybridizing *Lilium lancifolium* with *L. tigrinum*, and, what was more astonishing, the impregnation of the Japan lily by the *Gloriosa superba*. We commend this feature to the consideration of the members of our own Horticultural Societies.

TILTON'S JOURNAL OF HORTICULTURE.—The numbers for January and February were laid on our table together, though copies were sent us promptly at date of issue. Owing to the failure of the copies first mailed to come to hand, we have not been able to notice this handsome magazine earlier. The January number contained a coloured lithograph of the "President Wilder" strawberry, which has been highly commended by the Fruit Committee of the Massachusetts Horticultural Society. The publishers have purchased the entire stock, and a plant of it will be presented to every subscriber to the magazine for 1869. Both numbers are finely illustrated with engravings of flowers and fruit, and filled with very interesting and valuable articles by such eminent horticulturists as Marshall P. Wilder, John Ellis, Joseph Brook, &c., &c.

THE "GARDENER'S MONTHLY," for February, contains a large amount of interesting horticultural matter. It gives a timely caution to its readers on the subject of Orange quince trees, one that may be of value to some of the readers of the CANADA FARMER. The planting of the quince has been largely on the increase, and the demand for Orange quince trees had exceeded the supply; and there are men who will send out the Angers quince to fill orders for Orange, because the Angers quince of that size costs them no more than $60 per thousand, and the Orange quince can scarcely be had at $250 per thousand. An article by the editor on the "Feeding Roots of Trees," goes far to sustain the views of our esteemed correspondent "C." It says that the root fibres of trees are only annual; that, like the leaves, they die every year; and that these root fibres will be found to be nearly all on the surface, decreasing in number and importance with every inch of depth, so that at a depth of one foot from the top scarcely a fibre will be found, only large roots—tap roots—but no root of the slightest benefit to the nutrition of the tree.

THE GRAPE CULTURIST, a monthly journal devoted to grape culture and wine making, edited by George Husmann and Charles H. Frings, is published at St. Louis, Missouri, at $2 per annum in advance. The January and February numbers have just been laid on our table, and are full of practical articles of great interest to those who are interested in the culture of grapes and the making of wine. The publication of such a journal is an indication of the great interest taken in the culture of the vine in the United States, and will be of great value in affording a medium of interchange of experience, as well as by imparting to beginners the stores of knowledge which its able editors have amassed in the course of many years' devotion to the science.

THE GRAPE-GROWERS' GUIDE, a plain and practical work upon the management of the grape vine. By J. Kuch, Waterloo, N.Y., price 25c. The system adopted by Mr. Kuch is the same as that recommended by Mr. Fuller in his treatise on the grape.

Catalogues Received.

Frost & Co.'s Descriptive Catalogue of Select Green House, Hot House and Bedding Plants, Bulbs, Dahlias, &c., cultivated and for sale at the Genesee Valley Nurseries, Rochester, N.Y.

Frost & Co.'s Descriptive Catalogue of choice Flower Seeds, imported in the spring of 1869. Genesee Valley Nurseries, Rochester, N.Y.

Frost & Co.'s Wholesale Catalogue or Trade List of Fruit and Ornamental Trees, Shrubs, Roses, Bulbs, &c., for the spring of 1869. Rochester, N.Y.

VICK'S ILLUSTRATED CATALOGUE.—By an oversight, we omitted, in noticing this excellent catalogue, to publish Mr. Vick's address, which is Rochester, N.Y., U. S.

Annual catalogue of choice and select Garden, Flower and Field Seeds, cultivated for and sold by John Vanderbilt & Brothers, No. 23, Fulton Street, New York.

Ellwanger & Barry's Wholesale Trade List of Fruit and Ornamental Trees, Shrubs, Roses, Dahlias, Bulbs, &c., &c. Rochester, N.Y.

Annual Trade List of the Cherry Hill Nurseries, West Chester, Penn., spring of 1869. Hooper Bro. & Thomas, proprietors.

Catalogue of Arnold's Canadian Hybrid Grapes and Raspberries, from Charles Arnold, Paris, Ontario. This is a descriptive list of the new seedling grapes and raspberries raised by Mr. Arnold, and now for the first time offered to the public.

P. M. Watson's Catalogue of Select Fruit and Ornamental Trees and Shrubs, Roses, Bedding Plants, Greenhouse Plants, &c., &c. Old Colony Nurseries, Plymouth, Mass.

This catalogue also embraces a list of garden seeds, fruit and ornamental tree seeds and flower seeds.

Ellwanger & Barry's Descriptive Catalogue of Fruits, illustrated with engravings of dwarf fruit trees and of small fruits. It is a very full and useful list of the fruits now in cultivation in one of the most extensive and enterprising nursery establishments on the continent, giving, in a few words, the quality and value of the several fruits. Rochester, N.Y.

SIMMERS' CULTIVATORS' GUIDE FOR 1869.—A descriptive catalogue of Agricultural and Garden Seeds, by J. A. Simmers, Toronto, containing brief and clear directions for the cultivation of vegetables and flowers, and much useful information on a variety of horticultural subjects. The catalogue is profusely illustrated. Mr. Simmers advertises for sale, among other novelties, the Early Rose Potato.

Hovey & Company's Illustrated Catalogue and Amateur Cultivator's Guide to the Flower and Vegetable Garden, &c., &c., 53, North Market Street, Boston, Mass.

This catalogue occupies nearly one hundred and fifty pages, closely printed, containing directions for the cultivation of annual, biennial, and perennial flower-seeds, with special directions to amateur cultivators, and plans for flower-beds, descriptions of flower and vegetable seeds, of gladiolus, Japan lilies, and other bulbous flowering plants, and is profusely illustrated with engravings of the most interesting plants, flowers, and vegetables, and ornamented with two coloured lithographs. Price 25 cents.

WASHBURN'S AMATEUR CULTIVATOR'S GUIDE TO THE KITCHEN AND FLOWER GARDEN.—We thought, on receiving Vick's Catalogue, there was nothing to equal it, but we were mistaken. The above Guide and Seed Catalogue is a handsomely got up volume of 152 pages, illustrated with cuts, and also eighteen lithographs of some of the new varieties of potatoes, tomatoes, and flowers, some of these coloured after nature. It is published by Washburn & Co., of Horticultural Hall, Boston, Mass., the oldest established seedsmen in America, and sent on receipt of 50c. We notice that they keep for sale seed of all the favourite English grasses and forage plants.

John A. Bruce & Co.'s Descriptive Catalogue of Agricultural, Garden, and Flower Seeds. Culinary Roots and Flowering Bulbs. 52 King Street West, Hamilton.

This is Mr. Bruce's eighteenth annual edition, and contains, besides the usual list of farm and garden seeds, a special list of all the novelties in that line, including the new potatoes, the report of the judges on the Wentworth turnip match, lists of hardy native and select foreign grapes, strawberries and garden implements.

Mr. Bruce's establishment in Hamilton contains besides an excellent assortment of the above articles, standard works on Agriculture, Horticulture, and Rural Economy.

Ferre, Batchelder & Co.'s Catalogue of Seeds, Vegetable and Flower Garden Manual, comprising a list of all the valuable varieties of American growth, together with many rare varieties, novelties, &c., with special directions for their cultivation, to which is added a list of summer flowering bulbs and small fruits, containing 80 closely printed pages. Price 10c. 231 Main street, Springfield, Mass.

Longevity of Fruit Trees in Britain

During my visit to England last summer, I was not a little surprised at finding, in the lower part of Kent, a gooseberry bush in full bearing, which originated from a cutting I sent from Lancashire forty-two years ago! There can be no mistake as to its identity, it having been in the possession of the same person for the greater part of that period. Several other bushes of different kinds, raised from cuttings sent from the same place and at the same time, were alive and bearing but a few years since. The soil is a good clay loam, and the situation freely exposed to light and air. The bushes were annually thinned by judicious pruning, and otherwise well cared for. Insect depredations were vigilantly kept down, and mildew all but entirely unknown. The variety in question is the "Roaring Lion," a sort very popular many years ago; the berries last summer were, notwithstanding the drought, of good size and flavour, amounting, I should suppose, to considerably more than a quart. The tree, for several years, has gradually evinced symptoms of decline, but for aught that appears at present to the contrary, may survive, with the exercise of the same care, some time yet. It should be borne in mind that the climate of this part of England is much less suited to the gooseberry than that of Lancashire, the south being both drier and warmer than the north-west.

I well remember the gooseberry shows of Lancashire and Cheshire thirty or forty years ago. The size of the berries exhibited was something enormous. I am afraid to state the weight and measurement, lest my memory should mislead. The fruit raised for these competitions was chiefly grown by hand-loom weavers living in the country—a class of men now almost extinct, after a severe and prolonged struggle with steam-power. Horticulture, in several of its branches, owes not a little to this class of work-people, some of whom made considerable progress in the study and advancement of various branches of natural science—botany and entomology in particular. A weaver working in his house could throw down the shuttle at any moment, and attend to the productions of his garden immediately surrounding. He would take as much care—in some instances, perhaps, more care—of his gooseberry bushes, as of his children, reduce the number of berries to a very few, and surround the stems at the surface with muck or moss, and in dry weather moisten it frequently with water, or manure in a solvent condition. On a show day he would often walk many miles with a dozen or two of berries carefully packed in a basket. A copper teakettle was a prize commonly offered in gooseberry competition, and I have seen the celliog of a country weaver's kitchen literally covered with this article, the results of many years' competition, and the owner would point to these trophies with strong feelings of justifiable pride.

The durability of fruit trees, and perhaps of forest trees, in England, is generally much greater than on this side the Atlantic. I observed peaches, nectarines and apricots, trained to open walls, still bearing, that had been planted 30 or 40 years; and also filbert trees of a similar age, still bearing. I gathered some pears of good size and quality of the Poplar variety from the only surviving branch of a tree which was, to my own knowledge, in a decaying condition half-a-century ago! It would appear to be a law of organic life that slow growth and durability are connected as cause and effect.

It is worthy of remark, in travelling through Britain, a distance of only a few hundred miles, say from Cornwall to Sutherlandshire, how exposure and elevation of the surface, rather than mere latitude, affect both animals and plants. Cattle have quite different coats on the eastern to what they have on the western side of the country, arising in great measure from differences in atmospheric humidity. In Cornwall I partook of ripe strawberries grown in the open air in May, and journeying northwards found that delicious fruit coming progressively into season, and finished with some of a most agreeable acid flavour in the north of Scotland, as late as September.

Notwithstanding the abuse which the English climate frequently comes in for, I am of opinion that in no other country in the world has the horticultural art been carried to so high a state of excellence, or it might be said, perfection. From the humble cottage, with its neat little garden of vegetables, fruits and flowers—honeysuckles and roses entwining around its doors and win

dows—to the extensive and picturesque grounds of the lordly mansion, with the necessary adjuncts of orchards and capacious conservatories—the love and progress of this useful and refining art can be distinctly traced. The explanation must be sought for in the harmonious balancing of capital, science, and practical skill, under the general guidance of a correct and elevated taste.

GEO. BUCKLAND.

Bureau of Agriculture,
Toronto, Feb. 7, 1869.

The Apple in Quebec.

To the Editor.

SIR,—I was glad to see in the CANADA FARMER of January, an article on the culture of apples, which I so much want to see attended to down here. I am only theorising, but do think that this Canada East which has so hard a name—these few acres of snow—might be rendered vastly more prolific in the comforts of life. One of the chief of these is in my opinion the *apple*. It is supposed to have been the forbidden fruit, and I am sure that to most people in Quebec city it is such, because of the high price of our imported apples, *and they are all imported*. I argue that they could be produced as far east as this city, for the following reasons:—

1st. Our climate is very like that of Montreal, and Montreal is famous for its apples. We are a little later in the loss of our snow, but that I hold to be an advantage, as it is the late spring frosts, coming after early spring vegetation, which damage fruit trees.

2nd. If nature produced a certain sort of trees in one place, in which place, say, apples will succeed, we have a right to expect they would grow in another neighbourhood in which we found the same sort of trees. Now our bush is exactly the same as that about Montreal.

3rd. If one man can grow an apple tree, so can another under similar circumstances. Further, if one will grow, so would 1,000, or a million. I have known five or six farmers with one or two apple trees flourishing in a district condemned (ignorantly but persistently) as unable to produce the fruit. Here and there in the neighbourhood of this cold corner, apples grow and flourish. I heard yesterday of a gentleman at Charlesbourg, (close to Quebec), possessing an orchard, one tree of which produced eight barrels. I know, a gentleman, H. G. Joly, M. P., who within twenty miles of the city has an orchard which yields very fairly. This gentleman produces greengages in the open air, and has a collection of most delicious plums, larger than an egg, which, together with cherries, are produced in good quantities. Now if one man can do this, I can see no reason why many could not do the same. As I said just now, I am only a theoriser in this matter, because I have had no opportunity of being otherwise at present, but I should be neglecting my duty to my country if I did not call attention to its undeveloped resources, and I do think it a shame that there is so little variety of produce where there might certainly be much more. I hope the extending circulation of your valuable paper will bring about some of these results. If he deserves the blessings of his race who causes two blades of grass to grow where one grew before, much more does he deserve it who induces many men to bring such desirable results about. I know no man who deserves so well of his country as the one who diffuses reliable agricultural information and induces improved cultivation of the soil.

PHIALA.

Quebec, Feb. 3, 1869.

A Select List of Well-tested Apples.

SUMMER.

Red Astrachan, Early Harvest,

AUTUMN.

Duchess of Oldenburgh. Gravenstein,
Fall Pippin, St. Lawrence,

WINTER.

Baldwin, Fameuse or Snow Apple
Northern Spy, Esopus Spitzenberg.
Pomme Grise, Rhode Island Greening.
Ribston Pippin, Golden Russet.

What Pears to Plant.

A subscriber from London makes the following enquiry:—

"I will thank you, through your next number of the CANADA FARMER, to inform me, to the best of your knowledge, of the names of the most approved kinds of standard pears, as I wish to plant some this spring. Good sized fruit, and to ripen either summer or fall (no winter kinds).

"Also, please say if the spring is a good time to top-dress an orchard with long dung, made this winter."

REPLY BY THE EDITOR—Spring is a very good time in which to apply such a top-dressing to the orchard. It is gratifying to see that sufficient value is placed upon the orchard to induce the inquiry, for heretofore orchards were expected to yield fruit without manuring. The well tried and most approved varieties of standard pears, are, for summer and fall:—

Doyenne d'Ete,
Beurre Giffard,
Osband's Summer,
Tyson,
Bartlett—Beurre d'Anjou,
Belle Lucrative,
White Doyenne,
Flemish Beauty,
Seckel—Sheldon.

The four first named are small-sized in fruit, as are all the earliest sorts. The Seckel also is small, but unsurpassed in quality. The other varieties are of good size, best quality, and give a good succession.

What Shall We Plant?

As spring approaches, the inquiry, "What shall we plant?" is uppermost in many minds. To aid those who are distracted by the claims of the thousand and one things that are all "so beautiful and worthy of a place in every collection," according to the nurseryman's list, we propose to select a few of the trees and shrubs that are planted for ornament, that can be readily obtained, and that have been proven to be really ornamental and valuable. It is not intended at this time to discuss soils, situations, styles of planting, or purposes intended to be served; but presuming the planter understands these details, we now briefly enumerate the most suitable and valuable in our climate.

Of large-growing, deciduous trees, we name the European Ash, English, Scotch, and American Elms, Horse Chestnut, European Larch, European and American Linden, Sugar Maple, Silver Maple, Norway Maple, and the Tulip Tree. These trees are well adapted for streets and avenues, and for planting extensive grounds and parks.

The Purple-leaved Beech, Red Flowering Horse Chestnut, Judas Tree or Red Bud, Purple-leaved Maple, Mountain Ash, English Oak, Virgilia or Yellow Wood, Rosemary-leaved Willow and European White Birch, will be found to meet the wants of those whose grounds are of but limited extent.

Those wishing drooping trees will find them in the Cut-leaved Weeping Birch, the Camperdown Weeping Elm, the Weeping Mountain Ash, New American Weeping Willow, and Kilmarnock Weeping Willow.

Our list of evergreen trees is yet quite incomplete. Many of the most beautiful varieties have not yet been planted in Canada a sufficient time to test their ability to endure our climate. But yet there are some beautiful specimens in this class that can be planted with confidence. Of the large growing sorts we can recommend the White Pine, Austrian Pine, Scotch Pine, Balsam Fir, Norway Spruce, White Spruce, and Hemlock. Those that attain to a medium size are the American Arbor Vitæ, Siberian Arbor Vitæ, Red Cedar and common Juniper; and of those of a dwarf habit we have the Trailing Juniper, Savin Juniper, Tom Thumb Arbor Vitæ, and American Yew.

Are there not some gentlemen of taste who will plant some of the many interesting and beautiful evergreen trees and shrubs that give promise of enduring our climate, and report their success or failure?

The following list of shrubs will be found to comprise those which are most desirable and hardy: The Purple-leaved Berberry, White Fringe, Rough-leaved Deutzia, Double Crenate-leaved Deutzia, Tartarian Honeysuckle, Persian Lilac, Purple Fringe, Japan Quince, Double Plum-leaved Spirea, Double Lance-leaved Spirea, Fortune's Spirea, Rose-coloured Weigilia, and, no doubt, the new Prunus trilobata.

Fruit Competition.

(To the Editor).

Sir—Will you allow me to answer, through the columns of your journals the challenge of Mr. Harris, of Nova Scotia. Now, Mr. Editor, this challenge is given in such a way as to make it impossible for us to accept. In the first place, it meets my eye for the first time on the 6th of February; and his proposition is only for the last year's crop of fruit, and the trial to come off in Nova Scotia; and further, he must have just such varieties as he happens to have on hand, and which, perhaps, not another man in the whole Dominion would have at this late season of the year. Again, he does not give us his rules as to judges, &c.; so that before all those items could be arranged the fruit would be spoiled—especially as our apples would have to be subjected to the accidents incidental to such a journey at this time of year, especially the pounding over 1,000 miles of railway. Now, if Mr. H, or any other Nova Scotia friend, would really like to have a fair competition, we will submit a plan, and appeal to all intelligent and fair-minded pomologists if it is not eminently fair to all parties. Meet us half way—say at Montreal—select 20 of your best varieties, 10 of fall fruit and ten of winter fruit, 12 of each variety—10 varieties to be baking apples and 10 dessert fruit—quality to rule; but stipulate that the samples shall not fall below the medium size, as laid down by Downing. Each of the contestants to select such varieties as may be considered the best from his own Province. Judges to be chosen from the United States. The defeated party to pay all necessary expenses of the contest.

Yours respectfully,

J. C. KILBORN.

Beamsville, February 18.

Pear Growing.

"Cultivateur" writes as follows:—

"Not having any experience in pear growing, I write to you for information. What are the best varieties of summer, autumn, and winter pears for the country in the vicinity of Toronto, say two of each. The soil is a heavy clay? The reason why so few pears have been grown is that we have so few hardy and prodnctive kinds."

Will some of our readers, living at Toronto or vicinity, who have had some experience in growing pear trees, have the goodness to give "Cultivateur" the benefit of their experience?

"How can pear trees be raised from the seed? I have sown the seed several times in the fall, on good soil, but the seeds never germinated, Is there any different manner of sowing them? Are not pear trees raised from the seed more hardy and productive than grafted trees?"

There is no better way. Seed sown in the fall ought to grow. Was it sound seed when sowed? for if it is allowed to heat in the pomace it will not germinate. Or did "Cultivateur" cover it too deep? It needs only a very slight covering. No doubt some of the seedling pear trees will be hardy, perhaps more hardy than those in cultivation; but the quality of the fruit will be very uncertain, unless hybridization or cross-fertilization is resorted to. With a little attention to this, and judicious selection of parents, the results will be as certain as those of the stock-breeder, and good quality, quantity and hardihood be secured in the seedlings. The Buffam, Benrre Diel, Flemish Beauty, Louise Bonne de Jersey and Summer Bon Chretien, have the reputation of being our most hardy pears, and particularly the Flemish Beauty and Bon Chretien. With such varieties as these, there should be no difficulty in securing a hardy and valuable race of seedlings.

New Material for Strings.

A correspondent of the *Ohio Farmer* speaks in high terms of the value of the plant known by botanists as the *Yucca filamentosa*, one of the varieties of the Adam's Needle, for supplying strings as tough as leather, useful for every purpose of the farmer and gardener where strings are needed. He says it grows wild on the Southern Ohio and Mississippi, sending up leaves from three to four feet long. Perhaps it may be profitable to gather the leaves and prepare them for use in these northern parts, where the plant is not found.

To Prolong Flowering.—By cutting off the seed vessels of flowering plants, as soon as the petals drop, the plants will be kept in greater vigour, and the season of flowering be considerably prolonged.

Poinsettia Pulcherrima Poisonous.—As a warning to hothouse gardeners, I think it my duty to inform you of an accident which occurred to Mr. Buck, my gardener. On the 8th of this month, as he was pruning a plant of *Poinsettia pulcherrima*, he cut his thumb, but took no notice of it at the time, so slight was the incision. On the Thursday following, however, he felt an unpleasant prickling sensation in the thumb, which soon extended up the arm. On Friday it was succeeded by great numbness in his right arm and leg, and upon consulting a medical man he found that the poisonous juice of the plant produced these painful sensations. His leg was so much benumbed as to render it useless, but upon further applications of the fomentations and other remedies prescribed, the baneful effects have now subsided, leaving only a few spots on the lower part of his thumb, similar to those of the small pox. Oswald Mosley, Bart., Rolleston Hall.—*The Journal of Horticulture.*

Agricultural Intelligence.

Agriculture and Arts Association of Ontario.

FIRST MEETING OF THE BOARD.

The newly-elected Council of the Agriculture and Arts Association of Ontario met for the first time since the re-organization of the Board under the provisions of the present Act, at the office of the Association, on Wednesday, February, 24th. The following elected members of the Board were present:—The Hon. David Christie, Paris; Hon. J. Skead, Ottawa; Andrew Wilson, Maitland; John Walton, Peterboro'; Geo. Graham, Brampton; James Cowan, Waterloo; J. C. Rykert, M. P. P., St. Catharines; Robert Gibbons, Goderich; Lionel E. Shipley, Falkirk; and Stephen White, Charing Cross, Kent. The following were present *ex-officio*;—Professor Buckland, Professor of Agriculture, University College; Dr. Beatty, President of the Mechanics' and Arts' Association; and Mr. W. H. Mills, President of the Fruit-Growers' Association. Messrs. Edwin Mallory, Napanee, and Geo. McDonell, Cornwall, the remaining elective members of the Board, were absent. Mr. McDonell telegraphed to say that, owing to the storm, he would not be here before noon next day. Mr. H. C. Thomson, Secretary, acted as secretary to the meeting.

To allow time for the arrival of the absent members of the Council, the meeting adjourned till the day following, but before the members left the room, Mr. Mallory arrived, making only one absentee.

On the re-assembling on Thursday, Mr. Hugh C. Thomson, the Secretary, took the chair. No particular business was transacted during the morning, as it was deemed desirable to wait till afternoon for Mr. McDonnell. Mr. Christie, who had been nominated for President wished his name withdrawn, as he had determined not to become a candidate.

In the afternoon, after another adjournment, business was resumed, and Mr. Edwin Mallory having been elected President of the Council, took the chair. Mr. Lionel E. Shipley was elected Vice-President.

After considerable discussion, Mr. George Graham, of Brampton, was elected Treasurer, the salary being fixed at $400 per annum.

The Bank of British North America was selected in which to deposit the funds of the Association.

Mr. Rykert moved, seconded by Mr. McDonell, that four securities of $5,000 each, the Treasurer himself in security of $10,000, should be given by the Treasurer. Carried unanimously.

Mr. MacDonell moved, seconded by Mr. Rykert—That a new seal be procured for the Board. Carried.

The question of appointing a new Secretary was then brought up, and excited considerable discussion, but the motion to that effect, as well as another to postpone the decision, were lost, and Mr. H. C. Thomson was retained to fill that office.

Mr. Rykert moved that Messrs. Christie, White, Cowan, Mills and Dr. Beatty, be appointed a Committee to approve the Treasurer's security, and that they meet at the office of the Board on the 17th of March.

Mr. Christie moved, seconded by Mr. McDonell, that Professor Croft be consulting chemist; that Andrew Smith be veterinary surgeon and referee; that James Fleming be seedsman; that W. A. Cooley be general superintendent of the exhibition; that J. E. Pell be superintendent of the arts and manufactures departments; that J. Fleming and W. H. Mills be superintendents of the grain, roots, and horticulture departments. Carried.

At this stage of the proceedings, the minutes of the Board were read and approved of. The Secretary then read the Auditors' report.

The Auditors appointed at the Annual Meeting of the Agricultural Association of Ontario, held at Hamilton, in September, 1868, would first remark, that under existing circumstances, they have felt it their duty to allude to matters which occurred prior to the year 1868.

The classified account of receipts and expenditure, prepared by the Secretary from his books, and those of the Treasurer, together with the vouchers, will show,—.

The balance last audit to be..	$12,493 07	
The receipts	19,583 85	
Total.....		$32,024 52
The payments		25,110 88
Showing a balance on hand ..		6,908 14
The Treasurer brings down a balance in his books of....	559 14	
To which add two items twice charged.....	11 00	
		570 14
By adding the charge for commission made by the Treasurer in 1867.....		6,338 00
Making		$6,908 14

It will be seen the accounts so far agree.

Add to this,

Interest on renewals of Note, 1867.....	159 26	
Interest on renewals of Note, 1868.....	150 50	
Commission charged by Treasurer in 1868.....	800 00	
		1,109 85
These together.....		8,017 99
There is a Note held by the Bank of British North America against the Board, under the seal of the Board, signed by the President, Treasurer and Secretary.....		8,017 99
And, now under protest, for..	8,800 00	
Interest and Protest for 23rd February, 1869.....	143 86	
		8,943 86
There is also a balance left from the Paris Exhibition Fund, reported to us to be about.....		1,022 02
There is also a balance left from the fund given for the entertainment of the Maritime Guests, at London, in 1865, reported to be about.		300 00
These together make ..		13,283 87

Which sum remains in the Treasurer's hands, to be accounted for to the Association.

In the accounts of 1868, the sum of $1,600 is charged as Treasurer's salary; and in the accounts of 1867 $400 is charged, making together $2,000; which, by resolution of the Board, was appropriated to Mr. Denison, as Treasurer, for the years 1867 and 1868.

The Auditors, in charging the interest, as above, back to the Treasurer's account, do so believing that no such necessity existed as that of discounting a note; large balances appearing from year to year to the credit of the Association, and upon which no interest has been allowed.

The money given by His Royal Highness the Prince of Wales to be invested, the interest of which, from year to year, to be given in a prize or prizes, was lent to the late Col. Thomson, then President of the Board; the amount was £200 currency, or $800.

It bears interest at 8 per cent., which appears at the credit in account. We are informed that this is secured by a bond given by the executors of the deceased.

We would respectfully draw the attention of the Board to insurance on property. We are of the opinion that the Library should be insured; and it is a matter for the Board to consider, if a sufficient amount is insured on the Hall.

The farm property is insured in a Mutual Company; Mr. Denison, the Treasurer, being liable on a note for premium, for $48, upon which $4 has been paid and charged in accounts.

The certificate of the Secretary, as to the issuing of orders for payments, to the amount of $229, for which we had no vouchers, will explain itself. Since the certificate was made out Mr. Denison has produced receipts, and the butts of his cheque book showing all paid but five persons, the amount $27. We have not deducted this sum from the accounts. The Treasurer placed before us vouchers paid since the 31st December, 1868, amounting to $405 91; these are entered in the Treasurer's books, and certified to by us, and the vouchers handed over to the Secretary, but not included in the accounts.

JAMES JOHNSON,
THOS. D. HARRIS, } Auditors.

Toronto, 23rd Feb., 1869.

Our charge for audit is $122.

JAMES JOHNSON,
THOS. D. HARRIS.

The Auditors' Report was received, and the charge ordered to be paid. Before passing any vote on Mr. Denison's claim for $800 commission, it was resolved to request him to meet the Board on the following day.

Mr Christie said it had been an understood thing with Mr. Denison's Solicitor, that the item should be withdrawn. He did not see how then it appeared in the report. The Secretary explained, that in a conversation with Mr. Denison, that gentleman had disclaimed all knowledge of such an agreement having been come to by his Solicitor.

Dr. Beatty stated that the Board had all along distinctly repudiated the idea of Mr. Denison's right to charge any commission in any circumstances. When the idea was first mooted an augmentation of $600 had been made to Mr. Denison's salary, on the distinct understanding that the Board should bear no more of charges for commission.

The Secretary read a letter from the Poultry Association to the following effect:—

Sir—I have the honour to inform you that the Ontario Poultry Association have instructed me to communicate with the Council of Agriculture and Arts Association of Ontario on the following subjects:—

1st. That in reply to a deputation from the Ontario Poultry Association to the Commissioner of Agriculture and Arts, soliciting a grant of money in aid of the Association, they were referred by that gentleman to the Agricultural Association as a body, receiving from the Government a large annual money grant, a portion of which is appropriated to the same object as that for which the Poultry Association was formed.

2nd. That, in view of the many obligations already received from the late Board of Agriculture, the Poultry Association did not feel justified in making the application suggested by the Commissioner of Agriculture and Arts; nor do they now deem it prudent to solicit from the Council of Agriculture and Arts Association a direct annual grant.

3rd. The Poultry Association, however, desire to direct the attention of the Council of the Agriculture and Arts Association to the admitted fact, that, since their organization in the latter part of the year 1866, marked improvement has taken place in the specimens of poultry shown at the respective exhibitions—Provincial as well as local—held since that period; that such improvement is evident in the increased number and improved breeds of birds shown, the class of persons who have recently become exhibitors, the importation into the Province of breeds of poultry hitherto unknown therein, and generally the increased interest in poultry taken by a large class of persons hitherto indifferent to such matters.

4th. That this desirable state of affairs is chiefly attributable to the wholesome competition which has, under the auspices of the Poultry Association, lately arisen, and to the high standard of excellence adopted by the Association, whereby judges, in awarding prizes, are guided and governed, which standard, to the poultry fancier, cannot fail to contrast itself forcibly with the mode of judging and classifying fowls adopted at Provincial Exhibitions prior to the inauguration of the Poultry Association, and which at county and township shows still obtains.

5th.—In view of the foregoing facts, the Poultry Association respectfully submit to the Council of the Agriculture and Arts Association whether it would not be alike in the interests of that body, as in creating a still greater impetus to the importation and improvement of the breed of poultry in this Province, to transfer to the Poultry Association the entire control and management of the poultry branch of their annual exhibitions, with power to prepare prize lists, appoint judges, award and withhold prizes, and generally to conduct the details of that branch of the exhibition, in the same manner and under the same rules and regulations as those by which the exhibitions under their own auspices are guided and governed, and that the amount of prizes awarded, as well as other expenses incurred in respect of such exhibitions, be paid out of the funds of the Agriculture and Arts Association, together with an annual contribution of $——* towards the funds of the Poultry Association, by way of remuneration in attending to the duties above enumerated.

I have therefore to request that you will, as soon as convenient, submit for the consideration of that body the subject of this communication.

I have the honour to be, Sir,
Your obedient servant,
THOS. McLEAN,
Hon. Secretary.

Mr. Mills moved, seconded by Mr. Skead that a by-law be enacted appointing the President, Mr. Christie, Mr. John Walton, Mr. J. C. Rykert, and Mr. Cowan, to be an Executive Committee.

This by-law, after some discussion, was passed.

Mr. Rykert moved, seconded by Mr. Mills, that the annual exhibition be held on the 20th, 21st, 22nd, 23rd, and 24th of September.

Mr. Christie suggested that the Secretary should be instructed to notify the Agricultural Associations of Quebec, New York, Ohio, Illinois, and Michigan, of the time appointed for the holding of the Ontario Exhibition.

Professor Buckland suggested that the next meeting of the Board be held at London, as early in the Spring as possible. Agreed to.

Mr. Rykert moved, seconded by Mr. Wilson, that the Treasurer be authorized to pay such amounts, from time to time, as the Executive Committee may recommend. Carried.

Mr. Weld, of the *Farmer's Advocate*, was introduced to the meeting and urged the propriety of establishing an Agricultural Emporium, in which seeds could be collected and tested, and agricultural machines always at the command of the farming community. The whole subject was refered to the Executive Committee.

The Council adjourned till Friday morning at half-past nine.

The third day's proceedings commenced with the reading of the minutes of the previous meeting, after which Mr. Denison was introduced by the chairman, and proceeded to defend his claim upon the Association for commission. The substance of his statements is contained in the following letter written by him to the late President of the Board, and which he read :—"When making out my account this year I made a charge of one per cent. upon the money I received from the Government, and which I paid to the Riding Societies of the Province. This work I have performed for 15 years without any remuneration whatever. When I was elected Treasurer of the Agricultural Association the above was no part of my work, and it was not till some years after this extra work and responsibility was thrown upon me by an Act of Parliament. I have been relieved of the work which has been assumed by the Agricultural Department of Ontario, and I will venture to say the whole work will cost as much, if not a great deal more, than I have charged. When the subject came before the auditors, they said the charge was not at all in proportion to the responsibility and work.

When I first accepted the office of Treasurer to the Association (I was elected in my absence and without my knowledge), the work and everything in connection with it was in a far different state to what it is now, and has been for the last ten or fifteen years; yet there has been no increase in the salary attached to it.

The whole receipts of the Society in 1846 only amounted to $1,900, in 1847, $2,000, and in five years after, $8,000. It was in that year the Bill passed, under which I had to pay the Riding Societies $29,000 in addition to my other greatly increased work for the Association, in all $37,000.

The work has gone on increasing till now, when it amounts, as per the last completed audit, which was December 21st, 1866, to $81,449, made up as follows :—

Received on account of the Board	$ 5,265
Riding Societies	49,167
Associations	27,017
	$81,449

On these grounds Mr. Denisons' adhered to his claims for commission. In reply to an enquiry whether the matter could not be arranged by arbitration, he said that he did not like arbitration, and finally it was resolved—

That after hearing the explanations of Mr. Denison, and the old members of the Board, this Board is of opinion that the charge of the late Treasurer for commission should not be allowed, and that unless the money be paid over to the present Treasurer in one month, or security given, satisfactory to the Executive Committee, legal proceedings be taken to recover the same.

Mr. Rykert moved, seconded by Mr. Christie--That a special Committee, consisting of Messrs. Dr. Beaty, Macdonell, Graham, Christie, Cowan and the mover, be appointed to examine into and report to this Council upon the claims of the Association to the several Palaces and buildings in Toronto, London, Kingston and Hamilton, and the securities, if any, held by the late Board upon the same—Carried.

Moved by Mr. Rykert, seconded by Mr. Macdonell—That the Secretary and Treasurer be instructed to insure the Library and Furniture of the Association in some Stock Company for a sum of not less than $2,000. —Carried.

Moved by Mr. Rykert, seconded by Mr. Christie—That the Secretary be instructed to notify the Secretary of the Poultry Association, that their communication will be referred to the Executive Committee for their report.

Mr. Christie moved a By-law to the effect—That the Treasurer shall, as soon as convenient, deposit in the bank of the Association all moneys received on its behalf; that the Treasurer shall keep a deposit account of silver received on behalf of the Association in such bank. That the Treasurer shall, at the end of each month, prepare a statement of the receipt and expenditures of the Association, and publish the same in the agricultural journals published in the Province of Ontario. That there shall be two financial periods, namely, the 30th day of June and the 31st day of December in each year; and at the expiration of each period it shall be the duty of the Treasurer to prepare and submit for audit his accounts for such periods. That immediately on the preparation of such statement, it shall be the duty of the Treasurer to summon the Auditors to examine his accounts, and when the Auditors shall have made their report, the Treasurer shall publish the same in the agricultural journals aforesaid.

This by-law was read a first, second and third time, and passed.

Mr. Rykert moved, seconded by Mr. Gibbons, That Messrs. Patton, Osler & Moss, be appointed by the Board as their solicitors. —Carried.

It was moved by Mr. Rykert that the Secretary notify the Commissioners of Agriculture of the Treasurer's appointment.—Carried.

Dr. Beatty moved that the Treasurer's securities be referred to the Executive Committee in lieu of the Special Committee, and that the settlement of the valuation of the farm property be referred to the Executive Committee, and that the Secretary be instructed to employ Mr. Sheard to value said farm as soon as practicable.

A letter was read from Mr. Donaldson on the growth of flax. The letter was laid on the table.

Moved by Mr. White, seconded by Mr. Gibbons, that the next meeting of Council be held at London.—Carried.

Professor Buckland asked for the annual grant of $40 for the defraying of the expenses of the examinations at the Veterinary College.

Mr. Christie cordially supported the grant. There was no more useful institution connected with the agricultural interests of the country than the Veterinary College. In olden times, a properly qualified Veterinary Surgeon was a thing unknown, and the losses that fell on the farming population for lack of them was incalculable. Now, however, this desideratum was being speedily supplied by means of this institution. He regarded Professor Smith as able a man in his profession as was to be met with on the continent. In Illinois last year he had ample opportunity of comparing him with Professor Gamgee, and it appeared to him that Smith was the abler man of the two; and they ought to be proud of having such a man connected with the association in any way.

Mr. Cowan also spoke in favour of the grant.

Mr. Gibbons asked how many graduates the College had sent out? He put the question as he had not come across any of them in his district.

Prof. Buckland replied that already sixteen certified surgeons had been sent from the College, and at present the number attending the classes was twenty-five. Another point he called attention to was the want of accommodation for the proper carrying on of the classes of the College. The premises were altogether unfitted for the proper management of the College, and he thought it would be advisable at some early day for the Board to accept Professor Smith's offer, viz, that he will build proper premises if the Board guarantee him the sum of $150 per annum. Mr. Buckland then referred to the great importance of experiments being carried on, and enlightened views disseminated concerning the improvement of their classes of wheat. It was all very well to have shows of cattle, &c., but no matter of greater moment could possibly be brought under the consideration of agricultural associations than this. He then read the following letter from Mr. Arnold, Paris, bearing on this subject :—

"Paris, Ontario, Feb. 6, 1869.

"Hon J. Carling, Commissioner of Agriculture :

"Sir,—Having been impressed for many years with the importance of hybridizing or crossing different varieties of fruit, and having proved by my experiments with the grape and the raspberry, that with both these fruits, vigour and productiveness have been very much increased by crossing; the idea became strongly impressed on my mind that the judicious crossing of different varieties of wheat must be attended with like beneficial results. Acting upon this suggestion (and I believe also a desire to benefit my country), three years ago I selected one plant each, white Soules and red midge-proof wheat, and after much persevering labour have succeeded in producing 15 varieties (selected from upwards of 100) that seem to combine all the good qualities of both parents with much increased vigour and productiveness. One variety in one season yielded me upwards of 4,800 kernels from one kernel; and last year, under ordinary cultivation, some of these varieties yielded at the rate of from 60 to 80 bushels to the acre, while other varieties in rows, within 7 inches of them, under the same cultivation, only yielded at the rate of from 20 to 30 bushels per acre.

These wheats were partially examined last year by Hon. D. Christie, but more thoroughly by P. O'Connor, Esq., Hiram Capron, Esq., and Mr. Edward Brown, all good judges.

"I have now about an acre of these 15 varieties planted, and solicit from the Agricultural Association a most thorough investigation of their merits, believing as I do that they will prove of more value to this country than any new wheats imported from England or anywhere else.

"Your obedient servant,
"CHARLES ARNOLD."

Mr. Christie and other members of the board, spoke in high terms of the efforts Mr. Arnold had made in this direction, and the remarkable success that had attended his experiments, adding that it would be well in some tangible way to recognize the services of men like Mr. Arnold, who spent so much time and money in improving the produce of the country. It was stated that, in all probability, unless the Association obtained a quantity of Mr. Arnold's varieties of grain at once, they would not get it at all, as several Americans had an eye on his experiments, and were prepared to purchase the results at any price.

Mr. Christie, as one of the deputation to the Illinois Convention, stated that as a full report of the proceedings was being prepared in New York, they had not thought it needful to prepare any formal report. Whilst at the Convention, his attention had been particularly called to the Texan fever among cattle. A great many notions were afloat with respect to this disease, nearly all of which were absurd. Some maintained that frost was a preventive, but this was untrue. Others averred that Texan cattle could not be ill. He himself had seen a fine sleek Texan steer killed, and when the stomach was removed there were found a great number of ulcers healed up, and many fresh active ulcers, showing not only that Texan cattle were obnoxious to the disease, but that the disease itself was sometimes long continued. The disease was more of a sporadic character than epidemic. This had been distinctly shown by some experiments made with rabbits. Portions of the fungi had been spread on pieces of apples. The rabbits ate the apples thus prepared, and died of genuine Texan fever. This experiment showed how easily disease might be carried from one place to another. And he could give one instance illustrative of this. Last summer, thirty cattle died at Paris. The symptoms exemplified were similar in each case, and entirely different from those characteristic of any known disease. In fact, the symptoms were those of Texan fever; and from the fact that the disease in this case originated in proximity to the Grand Trunk, he had not the slightest doubt but that from the excrements of the cattle in trucks the disease had been dropped there. He at once applied to the Government to prohibit the importation of American cattle. His suggestion was carried out, and fortunately the plague was stayed. The object of the Convention was to investigate into the nature of the disease; and the result to obtain, if possible, uniform legislation relative to the transit of cattle. Several States were already moving in the matter, and the sooner the Province of Ontario took the matter up the better; and the Board should at once memorialize the Government on the subject. It was an awful, fearful scourge, when it had once obtained a footing in a country; and efforts should be put forth to render such a visitation as near to an impossibility as possible.

Dr. Beatty moved that in reference to the communication from Mr. Arnold, on improvement of seeds, that the members of the Executive Committee be instructed to supervise the operations of growth and mode of improvement, so far as opportunity allows, and that a special prize be offered in the prize list for any such efforts as shown by the Grain Grower. Carried.

The business of the Council being now over, the Chairman said that now he had for the first time an opportunity to thank them for the high honour they had done him in putting him in the honourable position of President of the Council. He then expressed the change which his sentiments had undergone in reference to the members of the old Board, whom he thought had been much maligned. He spoke warmly in their favour, and was heartily sorry for the rashness with which he had judged them.

The Chairman's remarks elicited a very angry rejoinder from one member of the Board, and the proceedings terminated in a very stormy and unseemly manner.

Fifteen million bushels of grain were handled at Toledo in 1868.

In three years a farmer on the Isle of Man raised seven bushels of barley from a single grain.

Sale of Thoroughbred Stock.—Mr. Joseph Kirby, of, Milton, Ont., sold, February 13, 1869, to Mr. Cowan, of Guelph, the young bull Marlborough Duke, out of Young Countess, by Duke of Marlborough, 5587, A. H. B., the heifer Pride of Esquesing, out of Mountain Daisy, by Butterfly 2nd, 91, C. H. B. To Mr. Waters, Eramosa, bull Young Marlborough, out of Countess 1st, by Duke of Marlborough, 5587, and heifer Maid of Marlborough, out of Mary, by Duke of Marlborough. To Mr. Rawson, Pusilnch, the heifer Lady Grant, out of Louisa, by Duke of Marlborough; and heifer Lady Grey, out of Miss Miller, by Duke of Marlborough. All the above animals are under one year old.

Wool Growers' Meeting.—The New York State Wool Growers' Association, held its annual meeting at Syracuse on the 27th of January. The attendance was large. The chief business, besides the election of officers, was the consideration of the feasibility of holding a wool exposition during the year, a question ultimately referred to a committee, and the discussion of a new reciprocity treaty with Canada, against which the meeting unanimously and urgently protested. Such a measure, in the opinion of American wool growers, was horrible to contemplate, would at once arrest the stream of emigration to the States, and indefinitely augment the population and prosperity of Canada; for, to quote the concluding sentence of one of the resolutions :—"With their cheap living, low taxes, and consequent low-priced labour, and with their good soil, the Canadas could multiply their productions to an indefinite extent, if we were to give them the benefits of our markets, where high prices must prevail as long as high taxes last." Let us be thankful for our advantages. As regards this question of reciprocity, we are satisfied that the abrogation of the treaty has hurt our neighbours more than ourselves, and that sooner or later a free interchange of commodities without restrictions will be resumed, to the mutual advantage of both countries.

Contents of this Number.

	PAGE.
THE FIELD:	
Notes on Spring Work	81
Cultivation and Preparation of Hemp	82
Practical Drainage	84
Seeding to Grass; Land Plaster	85
Liquid Manure; Harrows and Harrowing; Raising Early Vegetables	86
Alsike Clover a Permanent Pasture; Goodrich and other Potatoes; How to Prevent Smut	87
Duration of Vitality in Seeds; White and Grey Plaster; Save the Manure; Experiment with Salt; Field Peas; Beaver Meadows; Wood Ashes as Fertilizers	88
RURAL ARCHITECTURE:	
Roofing Materials for the farm	89
VETERINARY DEPARTMENT:	
Injuries of the Horse's Mouth; Diseases of the Digestive Organs of the Horse; Lice on Cattle, 90 Veterinary Surgical Operation; "Grease,"	91
APIARY.	
Impregnation of Queen Bees	91
STOCK DEPARTMENT:	
Early Fatted Hogs; Short-Horn Bull, "Minister" (with Illustration); My experience in Fatting Berkshire Hogs on Pea Soup	92
NATURAL HISTORY:	
The Pine Grosbeak (with Illustration)	93
Utility of Snow Birds	94
POULTRY YARD:	
The Use of Poultry Shows; Ontario Poultry Association	94
The Judgment of Poultry; Chicken Hatching and Feed	95
ENTOMOLOGY:	
Ravages of a Grape Insect in New York; Ravages of the Midge in 1868	96
The Meal Worm (with cut); Anti-Curculio Plums 97 Greenhouse Pests; A large Curculio; Entomological Annual for 1868	98
CORRESPONDENCE:	
Emigration and Hints to Emigrants	98
Notes and Comments; Selection of Judges and Officers of Agricultural Societies; Keeping Ice; 100 Commendatory; Mr. Simon Beattie	101
EDITORIAL:	
Agricultural Pursuits	101
Report of the Commissioner of Agriculture for 1868	102
The Emigration Question	103
Notes on the Weather	104
HORTICULTURE:	
Meeting of the Ontario Fruit Growers' Association	104
Meeting of the Directors of ditto; Western New York Fruit Growers' Society	106
Toronto Horticultural Society; Unleached Ashes, 107 Grafting (with cuts)	108
Camellia Count Esterhazy (with Illustration); The Nova Scotia Fruit Growers' Inter-Provincial Prize	109
Book Notices and Catalogues Received	111
Longevity of Fruit Trees in Britain	112
The Apple in Quebec; What Pears to Plant; What Shall we Plant?	113
Pear Growing; Fruit Competition	114
AGRICULTURAL INTELLIGENCE:	
Agriculture and Arts Association of Ontario—Meeting of the Council	114
Sale of Stock; New York Wool Growers' Meeting, 117	

The Canada Farmer is printed and published on the 15th of every month, by the Globe Printing Company, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (Postage Free) payable in advance.

The Canada Farmer presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

Markets.

Toronto Markets.

"CANADA FARMER" Office, March 12th, 1869.

FLOUR AND MEAL.

The market has been quiet and dull, without actual decline in prices, which may be quoted as follows:

Flour—No. 1 Superfine, $4 to $4 05.
Oat Meal—$5 75 to $6
Corn Meal—$3 50 to $3 75.
Bran, per ton—$16.

GRAIN AND SEED.

Wheat—There is very little doing on the street market. Notwithstanding the sleighing being good, only an occasional load of wheat is to be seen on the market square. The following are the prices: White fall, 92c.; red midge proof, 91c. to 95c.; spring wheat, 93c.

Oats—Market quiet and dull. 50c. is the highest price that was paid for a lot; on the street market 51c. to 52c. was to-day paid for a few loads.

Barley—The market has been dull and drooping. To-day not over $1.30 could be got for good samples in car lots, and the demand was light at that price. Street price $1.30 to $1.32.

Peas—The market has declined. No car lots have been changing hands. On the street market there were fair receipts during the past few days. The street prices range from 75c. to 80c.

Rye—Selling on the street at 65c.

Clover—Dealers are buying at from $6.70 to $7.

Timothy—Dealers are buying from $2.25 to $2.75.

Hungarian Grass.—Worth $2.

Flax Seed—Worth from $2 to $2 50, according to quality.

Tares—Dealers are buying at $1.75.

PROVISIONS.

Pork—Mess is scarce and held in few hands; sales have been made at from $26 to $27 per barrel.

Bacon—From 10c. to 12c.

Hams—From 12c. to 14c.

Cheese—From 14c. to 15c.

Butter—From 20c. to 30c.

Eggs—From 15c. to 20c.

SALT.

American selling at $1 50 in barrel. Canadian at $1.60.

THE CATTLE MARKET.

Beeves—The market has been better supplied than of late, and the cattle offering were generally good. In fact there were few or no third-class cattle to be seen. Selling at from $5.50 to $7 per 100 lbs.

Sheep—There were not many offering and there was a good demand. Prices have slightly advanced.

1st class.....$7 00 each.
2nd class..... 4 50 to $5 00

Calves—There was a fair supply offering, and a good demand. 1st class calves brought from $9 to $10. 2nd class, $6, and 3rd class, of which there were a good many, from $3 to $4.

HIDES AND WOOL.

Hides, from 6½c. to 8½c. *Calfskins*, green 10c.; dry, 18c. to 20c. *Sheepskins*, 40c. to $1.60. *Wool*, 25c. to 30c.

HAY AND STRAW.

Hay—Market has been well supplied, and prices have advanced. To-day the prices paid were from $14 50 to $15.

Straw—Fair receipts. Prices ranged from $5 50 to $7.

London.—*White Wheat*, $1.06 to $1.16; *Red Fall Wheat*, 85c. to 90c.; *Spring Wheat*, 90c. to 97c.; *Barley*, $1.20 to $1.30; *Peas*, 70c. to 80c.; *Oats*, 45c.; *Corn*, 65c. to 69c.; *Hay*, $9 to $10; *Potatoes*, 50c. to 55c.;

Hamilton.—*Wheat, White Winter*, $1 to $1.05; *Red*, 95c. to 97c.; *Spring*, 90c. to 95c.; *Peas*, 65c. to 85c.; *Oats*, 51c. to 52c.; *Barley*, $1.20 to $1.25; *Clover Seed*, $6.75 to $7; *Timothy Seed*, $2.50 to $3; *Turnips*, 20c. to 25c.;

Montreal Markets. Montreal, March 10.—*Flour*—No. 1 Canada Wheat, $4.50 to $4.55; No. 2 Western Wheat, $4.20 to $4.30; bag flour, 100 lbs., $2.15 to $2 25. *Wheat*—Spring, $1 09c. to $1 10c.; *Oats*—Per 32 lbs., 00c. to 00c. *Barley*—Per 48 lbs., $0 00 to $0 00.

Advertisements.

SEED POTATOES.

GET THEM TRUE TO NAME!

THE undersigned offers for sale the "Early Goodrich," "Gleason" and "Harrison," at $3 per barrel of 165 lbs., delivered to Great Western Railway. No Early Rose or Climax for sale until this fall.

Address, LEWIS SPRINGER,
v1-2-3t *Hamilton, Ont.*

GENUINE IMPORTED

NORWAY OATS.

SAMPLES SENT FREE TO FARMERS.

FROM 100 to 130 bushels grown to the acre, weighs from 40 to 45 pounds to the bushel.

This Oats has been grown on every variety of soil, and in every State of the Union, with the most perfect success.

The grain is *very large, plump* and *handsome*, has a remarkably *thin husk*, and ripens *earlier* than the common varieties.

The straw is bright, clear, *stout*, and not liable to lodge, is perfectly *clear of rust*, and grows from 4 to 5 feet high.

We have both the White and Black Norway, both the same price and equally productive.

We will send *one quart* of the above Oats to any address, *post paid*, for.....$1 00
Two quarts, post paid.....2 00
One peck sent by express or freight.....3 00
Half bushel, 20 pounds.....5 00
One bushel, 40 pounds.....10 00

CAUTION. ☞ We wish it distinctly understood that this is not a light oats, weighing 28 to 32 lbs., raised in New England, and sold under the name of Norway, but Imported Seed, every bushel guaranteed to weigh 40 lbs., or the *money refunded*.

Samples of both kinds *sent free* for a three cent stamp.

Also Circulars and Testimonials.

Address all orders to N. P. BOYER & CO.,
v1-2-2t Parkesburg, Chester Co., Pa.

FRUIT & ORNAMENTAL TREES,

FOR SPRING 1869.

STANDARD FRUIT Trees, for Orchards.
DWARF TREES, for gardens.
GRAPE VINES—Old and new varieties.
STRAWBERRIES, and other small fruits; best new and old sorts.
DECIDUOUS ORNAMENTAL Trees.
EVERGREEN TREES.
FLOWERING SHRUBS and Plants.
ROSES, PAEONIES, DAHLIAS, etc., superb collections.
GREENHOUSE and BEDDING PLANTS.

Our general stock is the largest and most complete in the country. Prompt and careful attention given to every order, large or small. Catalogues containing full information, supplied as follows:

No. 1. Descriptive Catalogue of fruits, 10c.
No. 2. " " Ornamental trees, &c. 10c.
No. 3. " " Greenhouse plants, &c., 5c.
No. 4. Wholesale, FREE.

ELLWANGER & BARRY,
Mount Hope Nurseries,
[ESTABLISHED 1840.] v1-2-2t. ROCHESTER, N. Y.

FRUIT FARM—FOR SALE,

Two Miles from St. Catharines,

CONTAINING 50 ACRES, on which is planted, a valuable collection of APPLES, PEARS, PEACHES, and GRAPES. Good House and Out-buildings.

For further particulars, address,
A. W. GOLDSMITH,
v1-3-1t. Box 68, St. Catharines.

GRAPE VINES,

BEARING VINES, DELAWARE & CONCORD, for Sale cheap. Very fine healthy Plants.

Address, A. W. GOLDSMITH,
v1-3-1t. St. Catharines.

GRAPE VINES FOR SALE.

ALL the best and earliest hardy sorts furnished at low rates by the hundred or thousand.

Parties wishing exotic sorts can be supplied with fine plants true to name.

D. W. BEADLE,
v1-2-3t *St. Catharines.*

LAND PLASTER

OF THE BEST AND STRONGEST QUALITY manufactured at Paris, Ontario; and sold at the lowest price, in Bulk, in Barrels, or in Bags, by

THOMAS W. COLEMAN,
January 13, 1869. Paris, Ontario.
v6-1-4t.

NEW ROSES.

FOR a choice collection of the best New Roses send to the ST. CATHARINES NURSERIES.

D. W. BEADLE,
v1-2-3t *St. Catharines, Ont.*

NEW AND RARE VEGETABLES.

HAVING been the original introducer of the Hubbard Squash, Marblehead Mammoth Cabbage, and many other new vegetables, *I continue to make the raising of new and rare varieties a specialty.*

I raise on my three seed farms,

Over One Hundred Varieties of Seed,

including all the STANDARD SORTS, and IMPORT many CHOICE KINDS from England and France.

Catalogue gratis to all.

JAMES J. H. GREGORY,
v1-3-6t. Marblehead, Mass.

Philadelphia Raspberry Plants

THIS is the hardiest and most productive Red Raspberry in cultivation. Strong plants for sale by the dozen, hundred or thousand.

Also, fine plants of the Clarke, Franconia, Hornet, Naomi, Imperial, Davison's Thornless and Mammoth Cluster, at the

St. Catharines Nurseries.
v1-2-3t D. W. BEADLE.

TO CHEESE MAKERS.

HAVING taken the FIRST PRIZE at the Provincial Show in Hamilton last year for CHEESE PRESSES, SCREWS AND HOOPS, I am now prepared to furnish everything of the best description required for the manufacture of Cheese, and at the lowest rates.

Orders promptly filled.

R. WHITELAW, Oxford Foundry,
v1-1-3t. Beachville.

CHEESE VATS & PATENT HEATER,

PATENTED JULY, 1868.

Manufactured by PELLOW & WALTON,

OSHAWA, ONT.

SEND for Illustrated Circular and Price List. Parties infringing or using our Heater without our consent, will be prosecuted.

P.S.—The above Heater can be attached to Old Vats.
v1-3-2t.

DAIRYMAN'S GOODS.

VATS, HEATERS, PRESS SCREWS, HOOPS, (RED CHERRY), CANS, &c., &c.,

OF the latest improved styles, and of the best quality, sold cheaper than any house in the trade.

SMALL VATS, complete, suitable for thirty cows and under, sent to any address in Canada, free from rail expenses, for thirty dollars. Send for price list, and address

H. PEDLAR,
v1-2-1f Box 100, Oshawa.

FOR SALE,

2 DURHAM BULL CALVES,
AND
13 Leicester Rams!

ALL PURE BLOOD. Apply to

JOHN BELLWOOD,
v1-3-1t* Near Newcastle, Newcastle P. O.

ORANGEFIELD

EARLY DWARF TOMATO.

THE Earliest and Best-flavored Tomato we have yet tested, and very productive.

Seed 25 cents per packet—5 packets for $1.00, free by mail.

GEO. LESLIE & SON,
v1-3-2t. Toronto Nurseries, Leslie P. O.

JUCUNDA

STRAWBERRY PLANTS

FOR SALE.

THE undersigned will sell plants of this very valuable berry at the following rates:

By Mail, post-paid, 50 cents per Dozen.
Do. do. $2 per 100.
Delivered at Express, $10 per 1,000.
Do. do. $75 per 10,000.

Wilson's Albany, 75c. per 100, $4 per 1,000; Triomph de Gand, Russel's Prolific, Brooklyn Scarlet, Metcalf's Early, $1 per 100, $5 per 1,000.

SALEM GRAPE VINES.

The undersigned has also been appointed agent for the sale of Salem grape vines propagated from the original stock purchased of Mr. Rogers, who pronounces it the best of all his Hybrids, which are becoming the most popular grapes in America. The grape is of a light chestnut or catawba color, free from hard pulp, very sweet and sprightly, with a most exquisite aromatic flavor; as early and hardy as Delaware or Hartford, having never failed to ripen its fruit during the last six years. It took the first prize (quality to rule) at the Lake Shore Grape Growers' Association, held at Painesville, Ohio, last season, in competition with all the leading varieties of that famous grape region.

PRICE OF 1ST CLASS VINES:

	EACH.	PER DOZ.	PER 100.	PER 1,000.
1 year-old.....	$1 00	$6	$35	$250
2 years old.....	1 50	9	50	350

Vines post-paid by mail at the price per single vine. Carefully packed and delivered at express at the other rates, and warranted genuine.

Address, A. M. SMITH,
Grimsby, Ont.

P. S.—Harrison and Early Goodrich Potatoes $4 per barrel. v6-3-1t

LILIUM AURATUM.

THE most beautiful Lily known, and quite hardy—See CANADA FARMER, page 72.—Large Flowering Bulbs, 2.00 each.

—ALSO—

Lilium Lancifolium Rubrum, 50c each, $5 per dozen.
" " Roseum, 50c each, $5 per dozen.
" Longiflorum, 31½c each, $4 per dozen.
" Candidum, 30c each, $3 per dozen.

Forwarded by Post or Express.

GEO. LESLIE & SON,
Toronto Nurseries,
v1-3-1t Leslie P. O.

GOODRICH SEEDLINGS,

FROM THE ORIGINAL STOCK.

THE subscriber offers for sale the early Goodrich, the most productive early variety of the

Goodrich Seedlings. Per 1½ bush., $1.75; bbl., $3; 5 bbls., $14.

Orders filled as soon as weather will permit. Remit P. O. orders, or current funds, in registered letter.

Packages delivered at Wellington Square Station, G. W. R. R.

Address, O. T. SPRINGER,
Wellington Square,
v1-3-1t County Halton.

EGGS FOR HATCHING,

FROM the following standard varieties of Poultry, warranted pure bred:

Light Asiatic Brahma, Grey Dorking, and White-faced Black Spanish, $2.00 per dozen.

A limited supply from the famous French Breeds, Houdan and Crève Cœur, $3.00 per dozen. Carefully packed, and delivered at Express Office, on receipt of Cash.

J. W. ACRES,
Member Ontario Poultry Association,
P. O. Box, 143,
v1-3-2t. Paris, Ont.

100 YOUNG MEN
AND
25 YOUNG LADIES WANTED!

TO fill Situations in Telegraph Offices on New Lines now building. No other business offers as good inducements. Good situations guaranteed. For particulars address

P. McEACHREN,
v1-3-4t. Supt. City Telegraph Company,
Toronto, Ont.

GARDENER WANTED,

TO LOOK AFTER A GARDEN AND GREENHOUSE.

Apply to JAS. GRIFFIN,
Seedsman and Florist,
London, Ont.

N. B. Reference required. v1-2-2t

THE ONTARIO

POULTRY ASSOCIATION

WILL HOLD THEIR

FOURTH GRAND EXHIBITION

OF Poultry and Pigeons, in the Agricultural Hall, Toronto, on

Wednesday and Thursday, 21st & 22nd April, 1869.

Prize list and blank forms, certificate of entry, may be had on application (if by letter pre-paid) to the Secretary.

Entries close on 31st March.

THOS. McLEAN, Hon. Sec.,
Box. 25, P. O., Toronto.
Toronto, 9th March, 1869. v1-3-1t

J. A. SIMMERS'

CULTIVATORS' GUIDE

FOR 1869,

Or Illustrated and Descriptive Annual Catalogue of Seeds of all kinds,

IS NOW READY.

INTENDING purchasers of Seeds will be supplied with a Copy of it, on receipt of pre-paid application, containing five cents in postage stamps. Address

J. A. SIMMERS,
Seed Merchant,
v1-3-1t. Toronto, Ontario.

NEW SEEDLING POTATOES.

THREE NEW KINDS of great excellence, *not to be found in any other Catalogue*, will be found engraved and fully described in my new Seed Catalogue.

Sent gratis to all.

JAMES J. H. GREGORY.
v1-3-6t. Marblehead, Mass.

HATCHING EGGS FOR SALE.

THE undersigned is prepared to supply HATCHING EGGS from his LIGHT BRAHMA PRIZE FOWL, at $2 per dozen.

Also for sale, a few choice pairs light Brahmas.

THOS. McLEAN,
v1-3-1t Box 25, P. O., Toronto.

TORONTO NURSERIES

WE offer for Spring Planting a Choice Stock of FRUIT & ORNAMENTAL TREES, and FLOWERING SHRUBS; an extra Choice stock of HYBRID PERPETUAL and MOSS ROSES; the best varieties of HARDY GRAPES for open air culture; PHILADELPHIA AND OTHER RASPBERRY PLANTS; best varieties of STRAWBERRY PLANTS, BLACKBERRIES, RHUBARB ROOTS, ASPARAGUS ROOTS, &c.

WE MAKE OUR WHOLE BUSINESS A SPECIALTY.

☞ Send a two-cent stamp for our Priced Descriptive Catalogue. Address

GEO. LESLIE & SON,
Leslie P. O., Ont.

☞ Observe the large number of FIRST PRIZES awarded our productions at the Provincial Exhibition last September. v1-3-1t.

THE TWO BEST EARLY POTATOES,

SELECTED FROM GENUINE STOCKS.

EARLY ROSE.—The Early Rose is a seedling of the "Garnet Chili" originated by Albert Brewer, Esq., an intelligent farmer of Varnum's. The skin is of a dull blush or rose color (in some soils nearly white,) the flesh perfectly white and solid, and the eyes very shallow. It produces fewer small tubers than any other early potato, boils through quickly, and is very mealy, and of excellent flavor. The good qualities which recommend it are—

1st. It is from ten days to two weeks earlier than any other Potato.

2nd. It is of larger average size than any other early Potato.

3rd. It is in table quality and delicacy of flavor without an equal.

4th. It is in productiveness the most astonishing variety ever offered to the public, and the reports of the yield from single pounds the present season are marvellous.

PRICE.—One pound, 75c.; do., postage pre-paid, $1; one peck (15 lbs.,) $6. Larger quantities furnished at reduced rates.

EARLY GOODRICH.—This variety was introduced a few years ago by the Rev. Chauncy E. Goodrich, of Utica, N.Y., who spent fifteen years in experimenting on the production of new varieties, and in that time raised over sixteen thousand seedlings, and the Early Goodrich was considered by him the finest of his whole productions; it is very early, of large size, white skin, smooth eyes, white flesh, of first-rate quality, and always perfectly solid—per bushel $2; per barrel, $4.

In addition to the above we have to offer several other varieties of very choice SEED POTATOES. For description and prices see our DESCRIPTIVE PRICED CATALOGUE, a copy of which will be mailed to any address on receipt of a three-cent stamp to pre-pay postage.

JNO. A. BRUCE & CO.,
Seed Merchants,
v1-3-2t. Hamilton, Ont.

NEW & CHOICE SEEDS

FOR PRESENT SOWING.

	Per Packet.
CABBAGE.—Little Pixie, the earliest variety.....	10c.
" Early Schweinfurt Quintal, very large and fine.....	10c.
CAULIFLOWER.—Demi-Dur, large and sure heading variety.....	25c.
" Lenormands' Extra Large, best late variety.....	25c.
CELERY.—Incomparable Dwarf White, extra fine..	10c.
" Incomparable Dwarf Crimson, " ..	10c.
LETTUCE.—Bruce's Nonpareil Cabbage, the largest and best.....	10c.
" Boston Curled, very beautiful.....	10c.
" Tom Thumb, very dwarf and compact..	25c.
RADISH.—French Breakfast, very tender and early.	10c.
" Scarlet Olive-shaped, very fine.....	10c.
TOMATO.—Bruce's Extra Early Apple, the earliest and best.....	10c.
" The Tilden, very solid and handsome...	10c.
" Keyes' Early Prolific, very early and fine.	10c.
CUCUMBER.—Mills' Jewess, for forcing.....	25c.

On receipt of TWO DOLLARS we will send FREE by Mail to any part of the Dominion, the above collection of New and Choice Seeds.

JNO. A. BRUCE & CO.,
Seed Merchants,
v1-3-2t. Hamilton, Ont.

SENT FREE TO EVERY BEE-KEEPER IN CANADA,

A DESCRIPTIVE CIRCULAR AND CUT OF

S. H. MITCHELL'S

PATENT COMBINED HIVE

AND

BEE HOUSE.

THE MOST PERFECT,
THE MOST USEFUL,
THE MOST DURABLE
AND ORNAMENTAL HIVE
Ever offered to the Public.

Address, S. H. MITCHELL,
Apiarian & Market Gardener,
v1-2-6t. ST. MARY'S.

IMPORTANT TO FARMERS.

LAMB'S
SUPER-PHOSPHATE OF LIME,

$40 PER TON.

NO CHARGE FOR BARRELS, AND DELIVERED FREE AT RAILWAY STATION, TORONTO.

FARMERS

Sometimes complain that SUPER-PHOSPHATE costs too much to use.

FARMERS—IT SAVES LABOR, IT COSTS LESS PER ACRE THAN STABLE MANURE,

If you take the time in hauling Stable Manure, and spreading it out. But suppose it did cost more, it is 100 per cent. better.

FARMERS—Do you not think 25 per cent. a good Investment?

LAMB'S SUPER-PHOSPHATE OF LIME

WILL PAY MORE THAN 100 PER CENT.

WE PUBLISHED LAST MONTH A LETTER FROM A FARMER WHO SAID HIS

HAY CROP WAS TREBLED WHERE HE USED SUPER-PHOSPHATE OF LIME.

DOES THIS PAY?

And also another letter from a gentleman in Guelph, to the CANADA FARMER, that at an outlay of $7.50, he got

625 BUSHELS OF TURNIPS TO THE ACRE

Where he used Lamb's Super-Phosphate of Lime. In the field that he used no Super-Phosphate on he only got 360 bushels per acre, showing a net gain of **265 Bushels per Acre**, at a cost of $7.50.

FARMERS, DOES THIS PAY?--IT DOES PAY.

Last year, in February, we sold to one Farmer $667 worth, and in May he ordered another large lot, and we could not send it, as we had sold all out, and received a great many orders after we had sold our stock. In consequence, this year we have manufactured a larger quantity of a very superior quality, and trust that we shall have enough for all; but do not delay in ordering, but order at once to insure to have it fulfilled. It is good for

WHEAT,	BUCKWHEAT,	CORN,	CABBAGE,
RYE,	MILLET,	BEANS,	ONIONS,
OATS,	BARLEY,	PEAS,	POTATOES.

—ALSO,—

TURNIPS,	BEETS,	CARROTS,	MANGEL WURTZEL,	CUCUMBERS,
		STRAWBERRIES,	TOMATOES.	

FOR FRUIT TREES, RASPBERRIES, CURRANTS, GRAPE AND HOP VINES,

Ground Bones are an invaluable and lasting Manure. When the Trees or Vines are first planted, a liberal supply of half inch Ground Bones should be used about the roots, and Super-Phosphate applied as a top-dressing. In spring loosen the earth, and apply liberally, raking it in. This will give a vigorous and healthy growth, ripening the wood early, and causing a larger amount and more luxuriant growth of fruit; also, improving the quality.

CASH TO ACCOMPANY ALL ORDERS.

PETER R. LAMB & CO.,

MANUFACTURERS,

TORONTO.

Vol. 1-3-1t.

THE CANADA FARMER

Vol. II. No. 3. | TORONTO, CANADA, MARCH 15, 1870. | New Series.

The Field.

Liming Land.

The application of lime to the land in greater or less quantities is a very common practice in Britain, though but little followed in this country. Considering how cheaply the article can be produced, and the lasting good effect of applying it to the soil, it is a matter of considerable surprise that the practice of liming land is not more general with us.

The properties to which lime owes its chief power in promoting vegetation are twofold. It is an alkali, or rather alkaline earth, that acts as a solvent on many vegetable acids by combination, forming with them a compound soluble in water, and thus more readily taken up by the roots of plants. Thus, on soils containing a large amount of humus it proves extremely beneficial. It is more porous than clay, and has therefore a mechanical effect in rendering clayey soils more friable and workable, as well as being of a manurial value in assisting the decomposition of the vegetable salts in the soil. This is termed correcting its acidity. Wheat and mangoids contain a considerable proportion of lime in their composition, which accounts for the necessity of having sufficient lime in any soil to ensure good crops of wheat or mangolds.

Lime acts most quickly and powerfully when used in its caustic state, in the form of quicklime, and applied in this form to the soil, especially to one abounding in vegetable matter, it soon acts, and reduces the half-decayed weeds and roots into soluble plant food. Hence the value of quicklime when applied to fallows or clover leys a week or so before wheat-sowing.

But lime in this state usually requires great care in handling, or injury to the person using it may result, and so the most general way of applying it is in the milder state of slaked lime.

The best time to apply lime is either in early spring, on the land after ploughing for spring crops, and before it is harrowed down preparatory to seeding, or in the fall on sod land that has been just broken up, to be followed by roots or corn. The lime will then have time during the winter season to decompose the roots of the grasses, weeds, etc., in the soil.

There are some soils that already contain sufficient lime for all practical purposes. These are usually called limestone soils, and overlie the limestone formation of rock, or have gravelly or shaly limestone in their composition.

As lime contains but little, if any actual elements of fertility, but rather acts as a solvent or digester of those already in the soil, its tendency is to cause the soil to become more quickly exhausted of its fertile salts, by enabling larger crops to be grown, unless they are returned to the land in the shape of organic manures. On soils that are poor, or have been already over-cropped and exhausted of these organic matters, the application of lime will be of no benefit whatever.

For the same reason, when once lime has been applied, if the land is still kept well supplied with organic matters through the use of barnyard manure, etc., it is well to renew the liming once every few years, if the greatest degree of productiveness is desired.

The quantity of lime that can be usefully applied to the land depends much upon the quality of the soil. The richer and heavier the soil the greater may be the quantity given.

In England it is no uncommon thing to apply a dressing of three hundred bushels per acre, while the average rate may be estimated at one hundred bushels per acre. In France it is more commonly applied annually, in smaller quantities of from five to ten bushels per acre. This last plan would probably be most applicable here, as our system of tillage is like that of France, somewhat too shallow, and as lime naturally sinks into the soil after a time, a heavy application all at once, at intervals of ten to fifteen years, would soon settle down to the hardpan, and become inoperative before half its work was accomplished.

Lime needs to be applied evenly over the surface, and when both the lime and the weather are dry; otherwise it will run into lumps before it can be mixed with the soil.

Soils that are wet, or subject to retain surface water, will gain no benefit from the application of lime, unless they are first drained.

Culture of Sugar Beets.

Mr. James Howard, M. P., in his report on European Continental Agriculture, gives an interesting account of his visits of inspection to several large growers, and manufacturers of Beet Root Sugar in France, Belgium and Germany. This portion of his paper, as stated in our recent notice of it, we reserved for future consideration, and now give an extract on the practical point of culture and management of sugar beets.

At Cologne he visited a large concern known as the Rhenish Beet Root Sugar Company, that in addition to the roots grown on a farm of their own of 7,200 acres, purchase large quantities of beets from the surrounding farmers at 20s. per ton, the pulp being returned to them free.

This firm has issued printed instructions for the guidance of the farmers, which translated into English are as follows:

"1. In order to grow good sugar beet it is necessary that the land intended for the roots

should be ploughed at least 10 inches deep before winter; as the frost renders the soil as fine as ashes, it enables the farmer to work the land readily in the spring, and the rapid growth of the plant is greatly facilitated. 2. From experience it is proved that roots planted in ground freshly manured, either with farm-yard dung or compost, suffer from unequal growth and various kinds of insects. The quality also, in most cases, is inferior. It is better, therefore, to highly manure the previous crops and avoid the direct application of manure to the beet field. 3. As soon in in the month of April as the land has become sufficiently warm (say 45 to 50 deg. Fahrenheit) the sowing of the seed should commence, for according to all experience, the earliest planted beet are always the best. Drilling in all cases is to be preferred to sowing by hand. The cultivator should always bear in mind that the soil would be as fine as meal, yet not too loose, so that the seed is not deposited too deep. 4. If sown by hand, the roots should be in 14 inch squares; within the radius of the Cologne fortification, a rich district; the rows should be 12 inches wide and the roots 8 inches apart, so that they do not become too big. If drilled with a machine, the distance should not exceed 15 inches, and thinned out at 10 inches. 5. As soon as the plants are visible, hoeing between the rows should commence. The growth of the weeds is thereby checked, and also, the ever-forming crust which shuts out the air, is broken, and insects and vermin are destroyed. When the plants have six leaves the thinning or singling out should be begun. Frequent hoeing subsequently is also necessary to keep the land from becoming bound. When, in the month of July, the heads of the roots show above ground, which heads are totally useless for the sugar manufacturer, their development must be checked by moulding-up, which operation also facilitates the getting up of the roots when ripe. 6. Leaves are to a plant what lungs are to an animal; therefore, nothing damages the beetroot more than taking off the leaves before harvest. Such a senseless course reduces the value of the crop one-half. 7. Roots, which are to be kept for several weeks or perhaps months, before being taken to the factory, should be quite ripe when gathered, should not have been exposed to frost, and should have been harvested in a fresh or moist condition. The roots are seldom ripe before the middle of October, yet frequent frosts occur at the beginning of November; the beetroot cultivator must, therefore, make haste to harvest his crop before the frost commences, and postpone all other work until the crop is secured. If a long drought has occurred, the growers should wait until a good rain has fallen, for roots that are harvested in dry weather, and after a long drought, will not keep. 8. The raising of the roots is best performed by means of spades or shovels; forks are not suitable for this operation, for, from experiment, too many roots get pricked, and pricks are a certain cause of decay, whereas a smooth cut with a shovel is not so injurious. In any case, however, wounding of the roots must be most carefully guarded against. 9. The leaves of the gathered roots should be cut off with a sharp knife close to the crown, also the under leaves, which in most cases are decayed, must be removed by the hand or the knife, because they induce rottenness, and if left on are troublesome during the washing process. 10. Roots which are to be conveyed to the factory within three or four days of gathering should be plentifully covered with leaves, because the sun's rays beget decay of the roots, and rotten roots produce dark coloured juices, which are valueless. If the roots have to be taken to the factory later, they must be thoroughly well covered with earth either in pits or heaps, so as to protect them as well from the heat of the sun as from the frost, and thus prevent their losing quality or quantity. The beet root cultivator should remember the well-known proverb, 'Out of the earth, into the earth,' i. e., the earth not only produces but preserves. 11. The pit or heaps should be 3 feet wide, and I spit deep, and of any convenient length. The roots should be laid with the heads outwards. The work of covering up as well as the removal to the factory should be carefully performed, so as to avoid the bruising or wounding of the roots as their soundness is of the utmost consequence. Heaps which are 3 feet wide should not be more than 3 feet high, so as to keep the roots cool and prevent their sprouting. The roots should be covered up *immediately*, with at least two feet of earth, in order to avoid thoroughly the admission of air, for every change of temperature is injurious to the roots. Ventilation by straw chimneys or other methods must be most strictly avoided. If the heaps cannot be completed before night, a thick layer of leaves should be used as a tempory covering to prevent damage by night frosts. 12. In carting the roots to the factory, great care must be taken against bruising or breaking off the tap-root (the tap-root is the richest in sugar), for roots handled roughly soon show black spots and quickly rot. 13. That the foregoing rules are attended to properly, the inspector appointed by the sugar factory will satisfy himself from time to time by actual observation."

Mr. Howard says: "If I do not mistake, these rules contain matter for reflection, and may suggest to the thoughtful English farmer some useful lessons in the cultivating and harvesting of the ordinary mangold crop. The processes pursued in the sugar factories of the Continent are very simple. The roots, being first washed in a machine, are dried and pulped; the juice pressed out by hydraulic machines, followed by the usual refining process. At the great manufactory I have referred to at Cologne, at which 150 tons of beetroot are converted into sugar daily, the process of extracting the sugar is unique, and far more perfect than any other factory I had the opportunity of inspecting. Indeed, the whole arrangements are complete. Every department was thrown open to me, and every process explained, without the least reserve. When the last portion of the factory was finished, a carriage and pair, belonging to one of the partners, was politely placed at my disposal for a drive round their extensive farm. To return, however, to the sugar-making: Instead of extracting the juice from the pulp by pressure, as is the general practice, the pulp is put into a kind of colander, placed inside of a cylindrical vessel; when filled, the colanders are put in action by the steam-engine, and a rapid rotary motion is imparted to them. The juice is thereby thrown off by centrifugal force. The result of this plan was said to be that two or three per cent. more sugar was obtained than could be extracted by the process of pressing. In Prussia the manufacturer has to pay the Government duty of 14s. 6d. per ton on the roots, instead of 17s. 8d. per cwt. on the sugar, as in France. The Prussian maker has, therefore, a greater inducement to extract every particle of sugar. This arrangement, again, has led the German cultivator to be much more particular in the choice of his seed. The best description I met with is the "Improved Vilmorin," propagated by M. Louis Vilmorin, of Paris, who claims to have had recourse to the process of selection and the establishment of pedigree in plants long before Mr. Hallet was heard of. M. Vilmorin informs me that the Vilmorin beet is more highly prized in Germany than in France, and accounts for it by the fact of the duties being levied in the different manner I have described. The refuse of the beetroot after the sugar has been extracted forms an article of cattle food, and is held in high estimation. About eighteen to twenty per cent is the proportion of pulp left; the worse the quality of roots, the smaller the quantity of pulp. It is preserved in deep pits, generally bricked like a grave—very often the expense of bricking is avoided—a covering of earth is laid upon the top. The pulp is generally consumed within the year; but if well covered up it can be kept sweet and good for two years, or, as I was assured, even for three years.

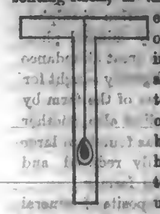
"Much controversy has taken place both as to the relative value of pulp as feeding stuff and as to its real money worth. Many practical men maintain that a ton of pulp is equal in value to a ton of roots. I think the money worth is best settled by the price it fetches. The average price at the factories I visited will amount to about 13s. per ton. Although horses do not like it, bullocks, which cannot be fattened on the root alone, can and are sometimes fattened for the English and foreign markets, without any other food than the pulp. Pigs do well upon it when cooked. Sheep will eat about twelve pounds a day of raw pulp. It is unquestionably more easily digested than the root itself; but cows kept upon it are said not to produce much milk. I was fortunate enough to obtain a debtor and creditor account of a sugar factory upon the continent, the locality of which, for obvious reasons, I am not at liberty to indicate. The proprietor is a large farmer. In it between 13,000 and 14,000 tons of roots per annum are made into sugar. The total expenditure, exclusive of the interest upon the money embarked, was £19,500, the total receipts about £33,000, leaving over £13,000 for profit and interest of money invested."

Practical Drainage.

BY ALAN MACDOUGALL, C. E.

As so much has been said about fall for drains and fall for water, it is necessary, now, that a few words of explanation be given, to show how the difference in level between two parts or points in a field may be ascertained. However true and regular the surface of the land may appear, the drainer, in attempting to follow that surface line with his drains cannot avoid having ups and downs in them. It is here the water lodges, and by not getting away, completely prevents air from coming up the drains and allowing them to work properly. It is very desirable, and should always be borne in mind, that the trench for the drains should have a regular grade, not be up and down anyhow, so long as the mouth is lower than the top.

To be able, therefore, to find out how his drains are to be laid, to work perfectly, the drainer needs some kind of a level, or instrument to help him take observations. The simplest thing that can be devised, and the one most readily presenting itself, is the *boning rod* already



explained. Two pieces of board, three or four inches broad and half an inch thick, are nailed together in the shape of the letter T, care being taken to have the head perfectly square to the body, which is usually about three feet long. Down the centre of the body a black line is drawn, and near the bottom a hole is cut to allow a plummet to hang. When the string of the plummet cuts the line, and the bob hangs freely, that is, is not resting on the body of the T, the head being placed at right angles to the body makes a perfectly level line, as level as it could be made by a carpenter's spirit level. It is not easy to sight along the top edge of the T, so it is well to have a sight nailed on to each end, and made to project from the side about two inches. They ought to be exactly level with the head of the T, or else, when a sight is taken on the presumed level line, it will in reality be on a grade.

The operator having got his borning rod into adjustment, can easily hold it quite straight, so as to keep the string of the plumb bob on the centre line. He then has only to send his assistant with a staff to any point whose level he wants to know. By looking along the sights, he can see where the line will cut the staff, and taking the difference in height of the reading on the staff and the height of his eye, or the top of the T, above the ground, he can find out whether the land rises or falls in that distance, and how much. It is very convenient, however, to have a rod graduated with feet and inches, of any convenient length, say six or eight feet, with a large target to slide on it, coloured in opposite quarters red and white. This can easily be seen by the eye, and with very little practice any one will be able to work with considerable accuracy. When the correct level has been got, the target is tightened by means of a thumb screw at the back of the staff, and it can be kept in that position until the operator comes up to measure the difference in height.

This is the readiest and simplest form of a levelling instrument. There are one or two others, which will be explained in the next paper, but the method of going to work is exactly the same in every case, and the method now explained is very simple. Any one can get this level, to give it a dignified name, made by any carpenter, or, indeed, make it for himself, and if it gets broken, the cost of repairing it is so trifling as not to be felt.

Hedges and Mice.

To the Editor.

Sir,—It is with great pleasure that I have read the late articles upon "Making Hedges" in your paper. The difficulty is not, I think, so much in the growth of the live hedge, but in the preservation of the fence when the whole of the obstacles towards a fair start have been overcome.

Now, it has been well shown in the articles to which I allude what kinds of plants grow the fastest or the best, which are most impervious, and which withstand best the frost, but there is a worse enemy than all these, namely, the ravages of mice. I was speaking to a gentleman the other day upon this subject, and he mentioned a case which came under his observation a few winters ago. A very fine hedge of thorn (I think he said the English thorn) had been planted and carefully attended to until it had formed a fence perfectly impervious to the attacks of the most evil disposed of breachy animals.

After much labour, time and money had been expended upon this hedge, and just as it had arrived at perfection, in one winter every plant was cut off by the mice, each stalk having been completely peeled from six to eighteen inches from the ground.

Now, such a case as this discourages many from attempting to substitute the beautiful hedge for the slovenly snake-fence. I have written, Sir, simply to draw from some of your staff, or readers, such experience as may show any easy method of preventing the ravages of these animals, or what kinds of plants seem to be most free from their attacks, thus hoping to provoke discussion, and call forth the opinions of those who have made experiments with live fences, upon this point.

C. E. W.

Ancaster, February 21st, 1870.

What has Science done for the Farm?

This is a question constantly and sneeringly asked by persons who pretend to dispute Book Farming, and who say, "I know all that twenty or fifty years of my experience can teach; I do as my father did, and so far as I can see my land is as good now as it was in my father's time, and I don't want to be troubled with "book farming."

There are thousands of such persons as these, and certainly book farming is very little use to them, for they have not the intelligence to make use of it, and yet these very people are the first to say when a crop fails, "times are not as they used to be, we had always good crops then."

The science of farming, and science in farming, has been more attended to in Britain than any place else in the world, and the consequence is that the average of the wheat and other grain crops has been within the last twenty years more than doubled, in some cases, and nearly doubled throughout England and Scotland.

Science in the first place went too far ahead of the times, the people could not understand it, and as the theorists who advanced the scientific assertions were not sufficiently practical, they could not always enforce conviction on the minds of their hearers and readers. Science first began to analyze the crops, and thus ascertained of what chemical elements they consisted. Then they analyzed the land, and prescribed as to what was required to render it fertile. Now, for want of material knowledge, the scientific people often went wrong, and every mistake was scored up against them, and widely blazoned abroad, while their successful hits

were confined to the parties benefited, and by them kept as quiet as possible, lest the landlord of a farm, if he found his tenants getting extra crops, should charge an extra rent, and thus get the benefit, or a larger share of the benefit than the tenant felt inclined to give him.

It was thus the interest of the scientific person to make his discoveries known, because it brought him customers, but it was the interest of the benefited farm tenant to keep the results as quiet as possible, and to prevent his success becoming public.

Of course but few believed the scientific theorist; it was his interest to make the most of his own discoveries, and this was a sufficient answer for the scoffers and doubters to give when questioned on the subject. Nevertheless, gradually it came to be seen that certain people would take hold of a farm of notoriously poor or bad character, and in the course of a few years would become comparatively wealthy, whereas previously, within the memory of man and within the legendary lore of the oldest inhabitant and Nestor of the village who had the history handed down to him for generations, every tenant on such and such farm in the parish had always either not benefited himself, or had been ruined out right. When therefore, a person on one of these farms was found to succeed, and it was seen that success followed the use of the new fangled manures, people began to see that there was something in it, and thus gradually success conquered ignorance and prejudice, and the sayings and recommendations of scientific men came to be over-appreciated. This naturally led to the advent of numbers of persons who, with either more or less scientific knowledge, established themselves as "Agricultural Chemists," analysed soils, charged high fees, and ended by recommending the newly discovered manures, which in the first place consisted of crushed bone or bone dust only.

Now, as the use of bone dust can never be mischievous on any land, and on land that really wants it works like a charm, these good gentlemen, who had recommended the article under such high fees, acquired great honour, and the faith of the farmers began to get unlimited in their advisers.

At first bone-dust quite coarsely ground was used, also, as it was called, "half-inch bone," that is to say, bones crushed into pieces about half an inch large in each direction; the bone dust was found to benefit the ground for at least three years, although there is little doubt that it did not yield up all its virtues even in that term. The inconvenience of manuring with one coat of manure which would last three years, was very soon discovered; if a tenant in the last year of his lease used the bone dust, he certainly got the benefit of a vastly increased crop, but he left an equal benefit in the ground for two following years, which he could not get paid for by the incoming tenant, and the consequence was a further reference to science to reduce the bone dust to such a state that the crop on which it was used might be expected to extract the chief benefit of it, without any large quantities remaining in the soil. Thus the use of capital would be saved, and the payment of two years' interest on the amount spent in this manner would be avoided. The result was the various preparations called "Superphosphates," in which the bones are dissolved in surphuric acid, and thus reduced to their elements, and the beneficial influences of the manure are brought into the immediate use of the crop, so that the crop following the use of superphosphate is supposed to extract the whole of the benefit. Various other methods of reducing the bones were resorted to, all with greater or less effect, but all intended for the one object, viz.: greater economy in the use of the manure.

The use of these various preparations of bone increased so fast in England and Scotland, and also in the best farming districts in some parts of the continent of Europe, that bones soon become scarce, and again science was resorted to. The next speciality as a foreign manure used was "guano," which is found by the deposits of the myriads of sea fowls and sea animals which frequent the islands in the Pacific, amongst which the most famous was from the "Island of Ichaboe," off the western coast of South America. There were various other islands in the same vicinity, and all these being situated in a latitude where rain is almost unknown, the deposits of guano were never leached by the action of water, or even heavy dews, and consequently not only retained all the usual insolnble elements of such substances, but all the soluble elements as well, particular ammonia, which existed throughout the substance in a very large proportion. In a considerable period the collecting and bringing this guano to England employed an immense number of ships, and the pursuit became a most important one. But the guano-bearing islands in the Pacific belonged to the Governments of Chili and Peru respectively, and these Governments exacted so high a price for it per ton, as to lead to the most exhaustive search all through the Pacific, Atlantic, and every other part of the tropical haunts of sea birds and animals, and fortunate was the captain and capitalist who discovered a guano island, belonging to nobody, where no export fees had to be paid. Such secrets were guarded with the utmost care, but of course could not long be concealed, and small wars were waged by private ships' companies, for the precious and coveted substance. Most of these deposits, enormous as they were, are now exhausted, or in a fair way to become exhausted, notwithstanding that in some of the islands the deposits were of hundreds of feet in thickness, and the substance was cut out of apparently solid cliffs, which towered one above the other to a considerable distance. The principal of these islands are now again abandoned to the birds and sea beasts, and the deposits are expected again to accumulate

Guano was found in analysis to consist of the phosphates with a small portion of sand, and the substances resulting from decay of animal matter, particularly ammonia: the birds who formed these deposits feed on fish and sea weeds, and the result was considered equal in phosphates, (from the bones of the fish consumed) to bone dust, and superior to it in ammonia.

As the Guano deposits began to fail in supply, science was again called in, and everything which would yield phosphoric acid to chemical tests was searched for, and when found, was converted to manurial uses. Mineral phosphate of lime, though entirely inert to vegetation, when used by itself, was found at once to yield up its treasures to the action of sulphuric acid, and consequently mineral phosphate, which is found in great abundance in certain rocks, was diligently sought for and converted to the use of the farm by scientific means. Coprolites also, another phosphate substance, was found in large quantities, and similarly reduced and passed into the use of the farmer.

Some of the largest deposits of mineral phosphate of lime which are known, are to be found in Canada, and that substance is now extensively mined, and exported to the all-devouring British Agriculturists, instead of converting and enriching our own fast failing fields. It is to be hoped, however, that this disgrace will soon pass away, and that Canadian phosphates will benefit Canadian lands.

After English farmers once allowed to themselves that science could help them, other substances as well as these already mentioned were sought for, and found, and are now in general use; but the further consideration of the subject must be deferred to a future occasion.

VECTIS.

Cow Manure.

The very best manure for all kinds of flowers, strawberries, and other small fruits, is cow manure. In fact, actual test has demonstrated that it is valuable as a manure for all kinds of vegetation, and better than anything else for the flower and small fruit garden. Cows feed upon herbage principally—the grasses, in their green or cured state—and the very essence of that herbage is applied to the plants in the shape of well fermented manure. I saved two cords of this valuable fertilizer last fall and winter in the following manner: I kept two cows, and a wheelbarrow and spade in my barn lot. I built two pens eight feet long, four feet high, and four feet wide, and covered them over with boards, leaving one end open. Knowing the value of this manure, and the difficulty of saving it properly if left lying about uncollected in the yard for the pigs and other stock to destroy, I told one of my boys that I wanted him to take it up with the spade and barrow every morning and evening, at milking time, and wheel it to the pens and throw it in. By way of encouraging him to do this work regularly, I agreed to give him twenty-five cents every Monday morning, as extra pay. He was faithful, and at the end of four months I had two cords of manure, worth more than the same quantity of any other fertilizer known, at a cost of only four dollars I would not have taken twenty dollars for it on the first of March. At that time I composted the two heaps with an equal quantity of sods from the roadside, wetting down the mass with soap suds, and on the first of April applied it to my flower borders and strawberry beds; and such flowers and fruit I never had before. Its good effects will be seen for years, or as long as I desire to keep the beds in cultivation with berries and flowers.—*Cor. Rural New Yorker.*

Frozen Roots.

In a former number of the Canada Farmer it was endeavoured to be shown that one of the best manurings which could be given to land for the purpose of renovating it, and preparing for a crop of wheat or barley, was a crop of roots destroyed on the land by the winter's frost, and then ploughed in as a cost of manure the following spring. Numerous instances were adduced in which such a course had been, both purposely and accidentally, followed, and with excellent and permanent results, and it was argued that if the whole transaction were carried through in the cheapest and best manner, that it would be an economical arrangement. Like everything new, it was received with incredulity, followed in many cases by unmitigated ridicule. People endeavoured to show that a crop of roots cost, in some cases, as high as forty dollars per acre, and although the more moderate calculators limited it to twenty dollars per acre, yet even at that rate it was declared that such a course would be extravagant and suicidal in the extreme; and it would not be too broad an assertion to make, that the recommendation has not been followed out in a single instance.

The present, or rather the late exceptional season, has taken the matter into its own hands, and the past fall and early winter have seen many hundreds of thousands of acres of roots throughout Canada, covered with snow in the fields, frozen up, and finally abandoned. This has been looked upon as a heavy visitation, but like most visitations, which at the time seem hard to bear, it may, and perhaps will, prove beneficial to the cause of agriculture, and show on a large scale either the falsity or the excellence of the views explained in the former article on the subject. If it should prove that such a manuring is the best that could be given, then every one's ideas will at once be turned to the cheapest plan of carrying it out in future.

The writer was, a few days since, in conversation with a most intelligent and well-doing farmer, and on asking the usual questions as to the progress of the crops, the farmer, with a heavy sigh, stated that he had been caught by the frost and snow, and that the largest portion of his root crop was now under the snow in the open fields, and, of course, destroyed. The matter was discussed, and the profits which the roots would have realized, by feeding to cattle, taken into account, and after all the farmer seemed to take the thing rather philosophically, observing, "If I lose on the cattle, I shall gain in the land, for it is the best thing that could be done to manure it, and I shall be sure of a big crop of barley, and if prices only hold, my loss will be more than made up, and my land will be all the better of it besides." Delighted at the expression of congenial views, the writer enquired what the farmer meant, and what crops of roots were left out. The farmer replied, a large piece of carrots, about two acres of mangolds, and a large lot of turnips. The carrots and the mangolds would, of course, be a dead loss, but he thought that some of the turnips might be fed in the spring. He was asked, had he ever known a crop of turnips or mangolds to be destroyed by frost in the ground, and then ploughed in. He replied, yes, that on one occasion, on his father's farm, near by where he lived, he had what was then supposed to be the misfortune to lose a crop of turnips in a similar manner, that the part so lost was only part of a field, the remainder of the roots having been buried in time. The result was, that although the land where the turnips were buried was worked and treated in the usual manner, and produced a good crop, yet the part where the turnips were destroyed in the ground had produced a far better crop; that the wheat was at least a foot higher on that portion, and you could tell to a line where the turnips had been destroyed and ploughed in, both by the excellence of the yield and the great increase in the produce of straw; and he added that the fact made so strong an impression on him that he should never forget it.

The writer then went into the subject with the farmer, discussed the merits of the plan and the cost, and finally received a promise of a full report of next season's operations, describing the improvement and otherwise of the succeeding crop, which was intended to be barley, and which results shall duly appear in good time in the columns of the Canada Farmer. The writer will feel obliged if others similarly circumstanced will report through the same channel the results of their experience.

VECTIS.

Stocking Pastures.

A subscriber at Richfield Springs, N. Y., asks, "Is it best to stock a pasture to its full capacity, or allow the grass to grow faster than stock can eat it down?" It will be found most profitable to stock as heavily as the land will bear, and the pasturage is sufficient to maintain in good growing condition. If the land is too lightly stocked, the animals will become dainty in their choice of food, and graze some portions closely while others are left almost untouched. The coarser grasses will then be seen growing up tall and rank in scattered patches, while clover and the finer and more succulent grasses will be cropped closely. This entails a great waste of food, as when some of the coarser grasses acquire a strong growth, and begin to run up to seed, they will not be eaten by any kind of stock. The best plan is to keep the pasturage at as even a growth as possible, by grazing different kinds of stock one after the other. Begin with the cows, let them have the first of it, and as soon as they have grazed it sufficiently, which will be as soon as their yield of milk shows the least falling off in quantity, put them on a better pasture, and let horses and young cattle follow, then sheep, and by the time the last have grazed it closely, if the land has not been overstocked, it will be late enough in the season to take all stock to their fall pasturage, and allow the summer grazed fields to be shut up in order that the grass may sufficiently recuperate before winter to give enough top to act as a mulch to the roots against severe freezing and thawing during late fall and early spring.

Where but one kind of stock is kept, dairy cows for instance, the better plan is to have the pasturage divided into three or four fields, and put them a week at a time, turn about, in each field in succession, beginning with the driest and earliest, so that the first pasturage will have sufficient time to grow thick and stocky before

the last one is fed off. This is particularly the case with clover, which is best not to be allowed to grow rank at any time, and especially when intended for pasturing milch cows.

Thin Sowing.

To the Editor.

Sir,—When in England recently I was much struck with the extent to which the theory and practice of thin sowing are extending. Mr. Mechi says that his "wheat from two pecks an acre is thick, and that raised from three and a half and four pecks an acre wants thinning." A Suffolk farmer, who has practised thin sowing some years, has decided, from different trials, that three pecks and five pints, or rather less, is ample seed for wheat. Wheat so sown does not go ahead as fast at first as that which is sown thicker; this is much in its favour, as it thus gets a better root-hold, whilst it is not being impoverished by tender shoots striving to outstrip their rivals in reaching the fresh air, so necessary to the plant. Thick sown crops seem to grow as if their existence depended on each plant out-growing its neighbour, thus expending their vitality to no beneficial purpose.

Thin sown wheat has strong, good straw, many heads to each seed sown, and good plump grain. The straw being stout and not too long, stands well in the field.

When it is considered that many sow seven, eight, nine, and even ten pecks of seed wheat per acre, the saving accomplished, alone, is a great object gained. If this quantity only is sown, the sample must be clean and good.

Barley, also, has shown good results from thin sowing. R.

Note by Ed.—Such thin seeding may do very well in Britain, where the soil is made rich and brought to a high state of tilth and the best drills are used, but would not be advisable in Canada, where climate and circumstances are so entirely different.

To Keep Birds from Seed Corn.

A good plan to keep crows and other birds from seed corn, and one of the efficacy of which we can speak from personal experience, is thus described in the *Country Gentleman*:

"The plan generally adopted by the farmers of this county, to prevent blackbirds from pulling up corn in the spring is: Put the corn, say one-half a bushel, in a tub or other convenient vessel, and pour over sufficient hot water to cover it; and let it stand a few minutes, or till the corn is thoroughly warmed; then drain off the water, and pour over the corn a very little gas or coal tar, which has been previously warmed till it is thin, and with a stick stir it thoroughly, which will give every grain a thin covering of the tar; lastly, dust over it some dry plaster or earth, to prevent the grains adhering together, and stir again.

Stock Department.

Breeding Horses.

In a former article on this subject we showed the folly of the too common practice of using mares as breeders without regard to age or fitness to produce healthy offspring. Having a mare that combines good form with perfect freedom from disease or defects of any kind, except perhaps those resulting from accident, and not attended with irritation, the next point to be attended to before commencing to breed from her is the selection of a sire.

Now one of the principal points to be looked to in a sire is purity of blood, from whatever source it is derived. There are but few fixed types of horses with the power to transmit those types to their offspring from common mares.

Those types are the thoroughbred racer, the Arab, the Suffolk, the Clydesdale and the Norman.

Of the first two we do not propose to speak, as the few we have of them are not the right kind, the tendency of the present racing customs being to breed animals of a leggy character, capable only of running a very short race at an unusually early age. Could we get a few sires of the thoroughbred class known in England as the old four-milers, and still found, to some extent, in Kentucky in the descendants of "Lexington" or "Scottish Chief," famous for their wind, courage and stoutness, and now chiefly used to breed weight-carrying hunters or extra good roadsters, much might be done to improve the quality of our travelling nags. For general farm work, combining strength, beauty of form, and colour, with docility and a quick pace in walking, the Suffolk is a most desirable horse.

The Clydesdale is perhaps the best known of any among us, and as a horse adapted to draw heavy loads over long distances at a slow pace, it stands unrivalled, but is too sluggish in temper and movements for farm work.

The pure Norman horse, an animal combining great strength and stoutness with moderate size and good action, has not yet been introduced here to our knowledge. The well known French Canadian horse partakes strongly of that type, having originated from a cross of Norman blood on the Indian ponies of the old settlers of Quebec.

One of the greatest evils of the present day among horses is want of character, resulting from the employment of animals as sires that have nothing to recommend them beyond their powers of trotting.

Now, it is an acknowledged fact among turfmen that there is no such thing as a breed of trotting horses. The Morgans and Black Hawks at best were but mongrels, having an infusion of the blood of the racer, and in no case has it yet been shown that a horse possessing trotting powers has been able to transmit his peculiarities in that respect to his offspring. There has never been any attempt made to fix the type of the trotting horse, nor can there be, for the gait itself is one that is acquired by diligent training, and as a rule, no trotting horse has shown any other quality that would be desirable to perpetuate.

A common mare may or may not produce a good colt by a trotting stallion, the result depending not on the trotting qualities of the sire, but on what blood he may have inherited from his ancestors. Stonehenge, the best authority on horses, says, "The pure blood stallion had no plebeian ancestors, and his colts, if not closely resembling himself, will still be good, inheriting the qualities of some ancestor, while the colts of a trotting stallion are likely to take after some dunghill grandmother."

Our earnest advice to farmers who desire to breed good horses is to employ only sires that are really of pure blood, and particularly to avoid using any of the class of trotting stallions now so numerous, and so persistently encouraged by the mistaken policy of many agricultural societies and judges of horse-flesh, in awarding their prizes on the credit of what they may have been trained to do, rather than for any good character or qualities likely to be inherited by their offspring.

Were every stallion shown at an exhibition required to produce a pedigree showing his descent from a known ancestor, as is now done with cattle, to entitle to a prize, there would soon be an end to all breeding from fancy mongrels, now getting too common for the good of the country. An old writer justly says:—"The worst scrub of a hack of pure blooded lineage will produce better colts from a cold-blooded mare than the handsomest mongrel that ever went on a shodden hoof can do."

The Prussian Government has just adopted an extensive scheme for improving the breed of horses of all classes, by encouraging the formation of local associations for the purpose.

The Prince Consort's Farms.

It was only on that cheerless Sunday, when the Prince Consort's name first passed from our litany, that England seemed to awake to a full and abiding knowledge of what she had lost. None had more reason to mourn him than the agriculturists. He had united himself more closely with them that very autumn by becoming the President of the Royal Agricultural Society, and taking the chair at the first council meeting in the session of 1861-2. Agriculture held a high place among the subjects to which that broad heart and piercing intellect had been applied. Those who knew him best said that you could not take a country ride with him and fail to see that his mind was ever at work, thinking out some useful problem on farm stock, land, or tree. In his six farms he took especial delight, and each new invention and mode of culture was tested there without fear or favour. He also determined that they should be the neutral ground, on which farm stock, whose merits are so magnified or depreciated by local prejudice, should have an impartial trial, as well as the head centre, to which the first agriculturists of all nations should freely resort and exchange minds on food for the million, and the labourers' welfare.

The history of the six farms, including those at Osborne and Balmoral, has been done so fully and so ably by Mr. Chalmers Morton, that it is beside our purpose to enter into descriptions of soils, farm buildings, and modes of cropping. We may simply say that the four farms in the "royal county" comprise 2,400 acres, of which 700 are arable.

Her Majesty has a private sitting-room adjoining Mr. Tait's (the manager's) house, round which are hung pictures of prize cattle, pigs, and horses, which have nearly all been bred on the Royal Farms. They are by Herr Keyl, a very skilful farm-yard artist; and, in fact, we have rarely seen a prettier composition of the kind than the white Smithfield heifer, with a robin sitting on the wire fence. There are from eighty to a hundred Short-horns in the biggin, and forty to fifty of them are in milk. The dairy produce is all required for the Castle and the farm; and when the Court is at Balmoral, 120 pounds of butter are forwarded weekly. A dozen Alderneys are also kept as cream stainers; and the great object has always been to retain the whole badger colour, as there is a better foreign sale for them. This, however, was found impossible of attainment as long as the Alderneys were tethered head to head with the Short-horns, and kept the roan and flecked colours perpetually in their eye. They are imported at an average of from 20 gs. to 25 gs., and increase considerably in size with the rich grass, besides growing rather lighter in their colour. No forcing can make them more than half fat, when their milking prime is over, and seldom more than £10 can be got for them at the butcher's. In the height of the grass one or two of them have yielded sixteen quarts per day.

Cold Cream and Alix, two Short-horn cows of the famous Earl of Dublin milking strain, which were purchased for 100 gs. each at the Fawsley sale, have given as much as from thirty to thirty-five quarts apiece at two milkings. These two cows have made the herd; but, instead of the usual system of "Bates upon Fawsley," bulls of the Booth blood, and direct from Warlaby, have been used. Prince Alfred, Fitzclarence, Lord Hopewell, British Prince, &c., were here in turn, up to the time of the sale in 1867, and since then England's Glory has been in residence. The cross hit very fairly. Cold Cream had ten calves—three bulls and seven heifers—and they and their produce have already made £1,651 10s., while those left may be very fairly valued at £450. The old cow never had twins, and the highest price for any of her descendants was Mr. McIntosh's 150 gs. for Duchess. Alix has survived her, and has just had her sixteenth calf in her sixteenth year. Two sets of twins have been her lot; and she has so far had eight heifers, but they have not sold for the same prices as Cold Cream's, and have only realized £721, with £600 still to the good. The biggin can accommodate sixty cows standing face to face. Its stalls are nine feet by six feet, and furnished with iron troughs, divided into three compartments for food and water; and a raised platform, flagged with asphalt, and formed with slabs of Penryn slate, runs down the centre of the building. Old Alix was there, still giving upwards of twenty quarts; but Cold Cream had gone to the butcher. Some purchases have been recently made from Mr. Fowler of the Prebendal Farms, Aylesbury, who has been very successful with the "Bates upon Fawsley" cross.

The foreign cattle which Her Majesty has received from Eastern kings and rajahs are tied up with the rest. Three zebus stand side by side; the bull, which is grey, being the smallest of the lot. His Platonic consorts are both white, and one of them has its horns erect, and the other lying back, almost flush with the forehead. They do not seem to have a trace of vice about them as they gaze at you with their mild eyes, and stretch out their chocolate noses to be patted. A Bramah bull, from Mysore, stands near them, and seems about the size of a very minute Shetland trick pony. He is most courteous in his solitude; and, at the words, "Salaam, Joe!" down he drops on his knees. His hump is said to be porous, like a tongue. In a time of great drought it will shrivel, and then swell again when the rains descend. We believe it is the same with the zebus. The Alderney bull is in the next box to the Swiss one, which puts the *Ranz des Vaches* and all its associations of happy vales and hills at a discount, with its pot-belly and its head like a bushel. A tawny lion-colored African, which looked like a fusion of West Highlander and Alderney, and was sent to Her Majesty, with two cows, by the King of Portugal, has died. The calves have nothing but skim milk after the first two or three days; and the loveliest little black-and-white nosed Alderney we ever saw had no exception made in its favour. There are no Ayrshires kept upon the farm.

About two hundred Cheviot draft ewes are purchased direct from the Sutherlandshire hills, which ensures a freedom from foot-rot. Half of them are crossed with Southdown and the rest with Leicester rams, and the lambs are sold from the teat to the Windsor butchers about June. At one time only Leicester rams were used, but as the taste for the "black foot" crept in among a mutton eating population, the Southdown was introduced, and, although they gain in quality, there is a reduction of about four pounds in the dead weight of the lambs. The ewes are bought by character at the great Inverness market, and come by sea to London. It is very seldom that more than one crop of lambs is taken from them, and then they come to hand very quickly for the butcher.

Black Norfolk turkeys, grey Dorkings, and Aylesbury ducks are all reared on the farm, and those which are not used at the Castle are sold to poulterers and fancy breeders. The hen-house is constructed on very useful principles. A fountain plays all day to furnish fresh water, and large heaps of sand are put down specially for rolling in.—*Mr. Dixon in Gentleman's Magazine.*

Breeding Sows.

Although thrifty well kept pigs will procreate at four to six months of age, yet it is bad policy to permit the sexes to come together before they are eight or nine months, so that the sows shall not be less than one year when they farrow with their first litter, the period of gestation being sixteen weeks or 112 days—old sows produce the largest, strongest and best pigs. Successively breeding from young sows for several generations lessens the size and probably weakens the vitality of the pigs. Sows that are good breeders can be profitably kept for four or five years—and if such exclusively are kept for breeding it will not be necessary to change the boar annually.

Sows kept for breeding should neither be starved nor made very fleshy, but should be fed with a view to the most perfect health and vigor; they should never be kept in a close pen, but should have sufficient range for exercise; easy access to water, with such a variety of food as their instincts call for. Deprived of food which they crave, they frequently destroy their young, the cravings of appetite overcoming the maternal instincts; when properly kept and fed, this never occurs.

As the time of farrowing approaches, more generous feeding is required. The increased demand upon the vitality of the sow must be met by a full diet; but it should be composed mostly of green, succulent, and light diet,

carefully avoiding all heating and stimulating food. Little or no dry corn should be given. House and dairy slop, bran, shorts and coarse provender, with a good pasture range in summer, and when that cannot be had, as in winter, some kind of both vegetable and animal food should be given.

A few days before farrowing, the sow should be put in a warm, dry, well sheltered pen, and protected from all annoyances.

Little or no food should be given the day after farrowing, and but light feed and plenty of water for several days. A pail of swill at this time will often prove fatal to the sow. Careful attention to these suggestions will seldom fail to secure "luck" in raising pigs, while a neglect of most or all of them will have a tendency to make such a farmer an "unlucky" breeder.

The best season for sows to farrow is April or May. The weather is then sufficiently warm, and the sows can get a taste of grass and insects, a very important consideration. The pigs have the entire summer for growth, which prepares them to meet the inclemency of winter without injury. An April or May pig is worth two August or three November pigs. The early pig can be fattened if desired the succeeding winter, and if kept till eighteen or twenty months, will attain the maximum weight of the race. The late pig must be kept through the first winter, and when fattened the succeeding fall, will weigh 50 to 100 lbs. less than the early pig, and his keeping will most likely have cost more.—*Prairie Farmer.*

THE WOOL GROWERS' AND SHEEP BREEDERS' ASSOCIATION OF THE COUNTY OF LENNOX.—Officers for the year 1870: President, Donald Fraser, Odessa; Vice Presidents, William Dawson, Selby; John Sharp, Bath; Secretary, Francis Van De Bogart, Napance; Treasurer, John Dunbar, Napanee. Directors, Nathan Caton, Garret Vanalstine, Nelson Dollar, Henry Huffman, S. K. Miller, C. W. Huffman, Shipman. Reuben

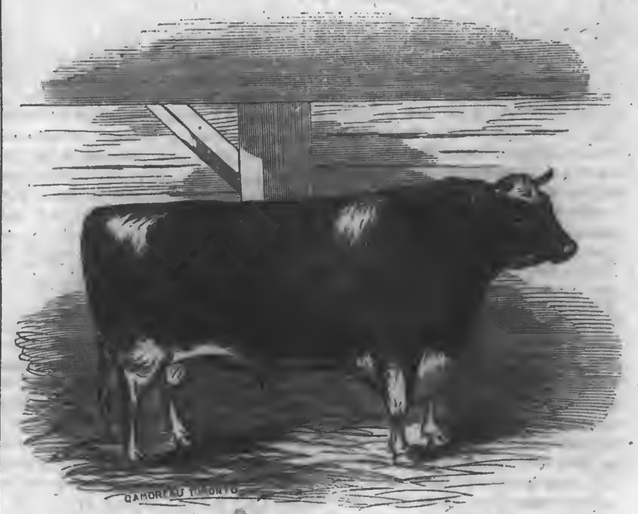
LIBERAL PREMIUM.—We direct special attention to the advertisement of the East Riding of Northumberland Agricultural Society, who, with commendable spirit and liberality, offer the handsome premium of $75 for the best stallion for general purposes exhibited at the Spring Show of entire horses, to be held at Castleton on the 20th of April. The competition is open to all without entrance fee.

CLYDESDALE HORSES.—When in Scarboro a few days since we had the pleasure of seeing two very fine young stallions of this breed, imported from Scotland by Mr. James Lawrie, of Malvern, in 1868. They are named respectively "Farmer's Fancy," and "Tinto." Their colour is bay, and they are very handsome animals, with good action and style. They are from a noted breeder in Scotland, and have very fine pedigrees. The dam of one of them has taken no less than seventy-four first prizes, and the dam of the other, four £50 prizes in one year, including that of the Highland Agricultural Society.

Holstein Cattle.

As the name indicates, this breed is of Danish origin, though now extensively spread over Holland and Belgium. It is believed that an early importation of these cattle to England formed the foundation from which the improved Shorthorns sprung, and their appearance indicates a strong resemblance to that breed, except in colour.

They have long been known and celebrated for their excellent milking qualities, and, no donbt, under the system of high farming and soiling carried out in Holland, have greatly improved in that respect of late years, the object being to breed them with a view to the development of their lacteal productiveness to the utmost.



They are of large size, with a very compact frame, have short horns and a fine silky coat of hair, and are invariably black and white in colour, being pied or mottled, but rarely, if ever, all of one colour. The cows in their shape resemble the Ayrshire, being largest at the hind quarters, and somewhat of that wedge form so characteristic of good milking stock.

As yet they are a new and comparatively untried breed in America, but one importation of them having yet come out. These were brought ont by a Mr. Winthrop W. Chenery, of Highland Stock Farm, Massachusetts, U. S. The weight of four imported cows, six years old, averaged 1,325 lbs. each—a heifer of two years 1,240 lbs. One of the cows gave, from 26th May to 27th July, two months, 4,018 lbs. 14 oz. of milk, or nearly 32 quarts per day. She continued in full milk up to the 24th of the following May, and the day after dropped twin heifer calves. This same cow, now 11 years old, is giving an average of 25 quarts of milk a day since February 10th, 1870, having calved January 18th. She gave 17 lbs. 14 oz. butter from six days' cream. Their milk is said to be exceedingly rich in casein as well as in butter, and they are likely to prove exceedingly valuable in cheese making districts.

Mr. Chenery has made two importations, but was unfortunate with the first, as they had no sooner arrived than that dread disease, the rinderpest, then alarmingly prevalent in Europe, broke out among them, and to prevent the disease from extending to the neighbouring herds, all except the bull had to be slaughtered. Even with the precautions taken, the disease spread to some of the neighbouring stock, but was finally stamped out by the energetic and uncompromising measures taken to stop the progress of the epidemic.

The bull Van Tromp, of which we give a portrait, was imported by Mr. Chenery along with the cows above noted, and his weight at five years old was 2,700 lbs.

The grade heifers got by this bull from native cows are said to inherit the good milking qualities of the Holstein blood to a very high degree. Their beef qualities

have not yet been tried, but their large size indicates that cows of that breed would be more profitable to turn to the butcher when past their best milking days than the Ayrshire or Alderney.

It is to be hoped that some of our stock breeders will try the experiment of introducing this valuable dairy stock, which, according to all accounts we have seen, are likely to be a much more valuable acquisition than the Jerseys, Alderneys, or, in fact, any breed excepting the Shorthorns.

Care of young Pigs in Winter.

It seems to be generally admitted that the stock of pigs in the United States is unusually light. At any rate, pork brings a very high price, and this fact, in the face of a tight money market, is pretty conclusive evidence that the supply is not equal to the demand It is not improbable that farmers will make, or have already made, an unusual effort to raise a large number of pigs next spring, and if we have a good corn crop next year, we may see a marked decline in the pork trade in the winter of 1870—1. But the indications now are that pork will be in demand through the coming summer, and early autumn, and we should make it a point to have our pigs in such high condition that we can avail ourselves of the high prices. Every farmer who has a litter of fall pigs should see to it that they are kept growing rapidly through the present winter, and during next spring and summer. A well-bred fall pig can easily and profitably be made to dress 250 to 300 lbs. at ten months old. But to accomplish this it is absolutely essential that the pigs be provided with comfortable quarters through the winter. and furnished with a liberal and regular supply of nutritious food. We do not advocate fattening pigs during our northern winter, but we do most earnestly advocate keeping young pigs growing vigorously. So far as our observation extends, half our farmers do little more than keep their young pigs alive during the winter. Whatever food the pigs eat is lost. They do not gain a pound, and they are so stunted that half the summer is past before they get into a thriving condition. No wonder such farmers say "pigs don't pay." Pigs kept warm, dry, and comfortable through the winter, with food enough to keep them nearly fat, will, when spring comes, grow with greater rapidity on food but little better than that which is ordinarily given to store pigs at that season; and so all through the summer, the effect of the good food and treatment in the winter will be very decided. With the run of good clover pasture, and the wash from the house and dairy, with a pint or so of corn a day, these well wintered pigs will gain rapidly, and will at any time be ready for the butcher. No matter what the price of pork may be, we are satisfied, from experience and observation, that if pigs are kept at all, the only profitable way is to keep them well. They may not always pay, but the liberal feeder has a better chance of getting his money back than the farmer who half starves his pigs.

Next to liberal feeding, a dry, warm pen is of the greatest importance. Better have a good pen, so constructed that neither wind, nor rain, nor snow can enter; but, in the absence of such a pen, the farmer is inexcusable who does not contrive some plan for keeping his pigs warm and comfortable. If made of boards, a few laths can be used as battens to stop up the cracks. We have seen pigs shivering in a pen close to a heap of stable litter, where half an hour's labour with a fork would have made the pen comfortable. No matter how the snow and wind are kept out. Anything that will stop up the cracks will answer. With litter or corn-stalks a rail pen may easily be made comfortable.

Cut Feed for Horses.

The various opinions that exist, relative to feeding horses to the best advantage, can only be decided by their owners making the necessary trial, and this will prove much more satisfactory than all the theoretical teaching on the subject that a man can read in a long day. The kind of horse to be kept, and the various sorts of work he may be called on to perform, will certainly cause a great variety in the results and verdicts pronounced. I have had as much experience with horses of all kinds, and of almost all descriptions of work, as any man can generally possess, and my opinion is decidedly in favour of cut hay and chopped feed. The hay must not, however, be less than from three-quarters to an inch in length as many records of inflammation of the bowls prove that horses of ravenous appetite may die from its use, if cut at a third to half an inch in length.

A horse comes in from work, say ploughing, at which he has been engaged since seven o'clock or probably earlier, until twelve or half-past at noon; a little water is generally given to quicken his appetite, and his feed is supplied. If half inch cut feed is used he will be found to grind only about one-half thoroughly, the other half being generally swallowed whole, and unchewed. If a hungry horse is then fed, and is at all subject to gripes, one day out of every ten he will probably have an attack of the malady, more or less violent, and it will not seldom end in inflammation of the bowels, and occasionally in death. This is caused by the irritation in the intestines of the unmasticated cut hay.

If cut feed of about one inch is used, the mastication will be much more complete, as the horse is compelled to eat more slowly, and the cause of itself is thus avoided. For many years I have tried this, and established the fact, beyond dispute, and my opinion was greatly strengthened by that of an old Yorkshire horse doctor, who had found, by nearly forty years' experience, these ill effects from cut feed (if half inch in length,) often occur.

With proper precautions and knowledge of how to use it; there is no doubt that cut feed is far the best and most economical, and amongst others, for these reasons:

1st. Horses so fed generally keep in better health, and as a natural consequence are much easier kept and are better up to their work, and less liable to ailments, especially *broken wind*

2nd. After feeding at evening—without hay in the rack to keep pulling at—the horse will generally lie down and rest, which the temptation of good hay before him constantly, will often induce him to neglect to do; and he will occasionally also rise during the night to eat—another temptation which is to a great extent avoided, if he is unaccustomed to find hay for his amusement.

3rd. You may feed cut hay and ground oats to any horse, young or old, no matter how warm, without danger of foundering.

4th. When cut feed is used, a very small quantity of water to damp the hay, (about half a pint is sufficient for each meal, before the ground grain is mixed with it), is absolutely necessary, or the hay will be rejected, and the grain be eaten, and by this alone a great benefit to the horses' wind is derived, immediate relief to a brokan winded horse being the consequence. If a very small quantity of salt is occasionally added to the water, it will tend to the general health of the animal. Do not, however, use too much, which is as bad as too little.

My experience goes to show that for particular work, damped cut hay, with ground oats, or other grain mixed with it, is far preferable and goes much farther than feed grain in the ordinary way; but the saving in hay is nothing in comparison, to the saving in time, and general health of the horse, and increased ability to do his work.

We all know that some horses will continue to eat good hay almost all day, and and if they are taken out to work, at a fast pace, with stomach distended by such poor food, almost certain injury is the consequence.

The fattening properties of so much hay may well be doubted, as few horses will

thrive on hay alone, even without work. I would much prefer cut wheat straw and grain (to the same value) to hay alone under almost all circumstances, especially for colts, and other horses will do more work at less cost when fed the same way.

C.

Feeding and Rearing Calves.

Many people, particularly in towns, so manage that their cows calve early in the spring before the grass grows. It is frequently found that a liberal feeding of hay and bran mashes scarcely supplies sufficient milk-producing food in order that enough may be obtained to rear the calf and to give a supply besides for the use of the family. I have found that the most nourishing food for the calf, when milk in large enough quantities cannot be had, or in cold weather when the "little stranger" requires plenty of food to keep up animal heat, is linseed meal, which proves an excellent substitute, and is in fact more fattening than the cow's milk itself. My plan of feeding is this: take the calf away from the cow so soon as it is born; if possible do not let it suck; feed it with milk from a common quart bottle at first; after a day or two it will learn to suck the finger and drink out of the pail. If there is not sufficient milk, boil a tea-cup full of linseed meal for half an hour in a quart of water, and stir it up with the milk. After the first two weeks the calf may be fed with half skim milk and the above quantity of boiled linseed, filling up the required quantity with water. Care should be taken to have the calves' mess as near as possible the same warmth that milk is when drawn from the cow. I have found that a calf will thrive and grow fat on this mixture.

Some people feed oat or corn meal, but there is danger of these "scouring," and thus losing the calf. Twenty-five cents' worth of linseed, or two and a half pounds per week, will be found quite sufficient, and this food will be found perfectly harmless. Calves should be kept in a warm, dry shed, with plenty of clean straw bedding, and properly and regularly fed. They can, with care and attention, be reared at any season of the year. I look upon it as a sin to kill heifer calves "Spare the innocents." P. G. B.

Ottawa, February 10th, 1870.

HEREFORD CATTLE.—Mr. Sandford Howard, the Secretary of the Michigan Board of Agriculture, who has paid considerable attention to the Hereford breed of cattle and written a valuable essay on the subject, says in a letter lately received: "I have strong faith in the profitableness of Hereford cattle where they are properly cared for, and are kept only for legitimate markets, without reference to speculation; and I do not doubt that the increase of the breed in Canada and the United States will be of public advantage. Indeed, I cannot but hope that the time is coming when Mr. Stone will receive the thanks of practical farmers, on both sides of the border, for his efforts in the introduction and propagation of some of the best specimens of this ancient and long-celebrated race."

Veterinary Department.

Diseases of the Horse's Foot.

NAVICULAR DISEASE.

The foot of the horse, from its complicated and highly sensitive structure, is liable to many diseases, and one of the most common, and at the same time most serious affections, is navicular disease, generally known as coffin-joint lameness. The parts involved in this disease are the navicular bone and its connections, and the extent of injury or abnormal change in the parts affected is found to vary according to the severity of the disease, and the time it has existed. Navicular disease, it is our opinion, may either be produced from injury to the tendon, or result from concussion and compression of the navicular bone. This is followed by congestion, or a sub-acute inflammatory action, which extends to the cartilages and synovial membrane, and in fact involves more or less the whole tissues in that region. The bone becomes ulcerated, and the cartilages destroyed. Plastic matter is also effused, which almost completely destroys the motion of the part. As a result of this severe and continued disease, the whole of the tissues entering into the formation of the foot become altered, leading to a contraction of both its sensitive and insensitive structures. Contraction at one time was erroneously supposed to be the cause of navicular disease, and other lamenesses to the foot, but the contracted condition of the foot is the result generally of internal disease, and particularly of navicular disease, or an effect of the foot not receiving its natural pressure from the ground. Although the term "coffin joint lameness" is frequently applied to this disease in Canada, the parts principally implicated are the navicular bone and the cartilage on its inferior surface, which forms what is called the navicular bars. This is for the purpose of allowing the tendon to play freely over the bone. The sub-acute inflammatory action attacking those parts may exist for a considerable time without greatly altering the structures, and in these cases the lameness is not severe, and disappears with exercise. After a time, the continued inflammatory action will produce ulceration of the bone, the cartilages and synovial membranes also becoming diseased. The tendon is also implicated in some cases, becoming thin and attenuated, whilst in others it adheres to the diseased bone produced by the plastic material exuded, or formed in the diseased parts. When the navicular bone or bursa presents these abnormal changes, permanent lameness is the result.

Like many other ailments to which horses are liable, hard work is often an exciting cause, as driving or riding horses rapidly when young, and not in a proper condition to undergo quick or violent exercise. It is also produced from injuries to the foot, or from cutting the sole too much when shoeing. It also results from a sprain to the tendon, or from allowing the shoes to remain too long without removing, the toe of the hoof in consequence becoming very long, throwing a greater strain upon the navicular bursa. Horses with short and straight pasterns are particularly liable to navicular disease when subjected to the tear and wear of streets and macadamized roads. In our next we shall notice the symptoms of navicular disease.

Staggers in Pigs.

To the Editor.

SIR,—On visiting my pig-pen a few days since I was surprised to find that two young pigs, aged about four months, which I had enclosed therein, were labouring under some disease of which I had not the most remote idea, and of which the following were the symptoms: They would walk about for a while in a state of evident stupefaction, and after a while would be seized with some spasmodic affection; they would then sit down on their hinder parts, and, elevating their heads in the air, would be seized with violent trembling, their under jaws quivering to a degree painful to behold. After labouring under these symptoms for a short time—from two to three minutes—they would again walk round in the state of stupefaction, and subsequently pass through the second ordeal.

Not knowing anything of the disease, I enquired of my neighbours if they had ever seen anything of the sort before. One told me the disease was called the "blind staggers," and recommended slitting their ears and cutting off a portion of their tails; this course was adopted. Another said the disease was called the "black tooth," and advised the punching out of all their black teeth; this course was also resorted to. Eventually, however, the sow appeared to be in a dying condition. I brought her into the house, and, as it appeared to me, she was affected with cramps; but before I could administer any remedy, she died.

I may say that the pigs have been kept up in the pen since November last. They have been well housed and taken care of, being fed on bran, house slops, etc. Perhaps you could inform me as to the name of the disease, and the best course to be adopted in such cases.

SUBSCRIBER.

REPLY.—The symptoms above mentioned were very likely the result of a disordered stomach, either from eating too much or from food containing some irritating or even poisonous ingredients. In similar cases we would recommend to give from three to four ounces of castor oil, and apply cold water or ice to the head. Cutting the ears and tail and knocking out of the teeth are practices too absurd to be tolerated in the present age.

WEAK KNEES.—A correspondent over the signature "South Dumfries" makes enquiry about a horse which is troubled with weak knees. "The only description," he says, I can give you of the trouble is that he shakes at the knees" Moderate work and plenty of nourishing food, together with good grooming and hand-rubbing of the legs, are the best remedies for weak knees.

BARREN HEIFERS—SWOLLEN UDDER.—A correspondent says he has "had three heifers at different times whose udders commenced to grow quite large when they were a little over one year old; they never got with calf. They would come in season generally every two weeks. The last of them I sent to bull in the fall. When I talked of sending her, one of my boys said, 'it is of no use sending her to bull, she will never get with calf.' 'Why so?' I asked. He replied, 'she has got a bag exactly like the others you had to beef on account of not getting with calf.' Now, it had never struck me that there was any connexion between the oases. However, it turned out just so. The heifer I speak of has been twice to bull, and has been in season again. Can you inform me whether those large-bagged heifers are apt to be barren, or can anything be done to cure them? The heifer is a very fine Durham grade, not too fat, but in good order.

REPLY.—In heifers that are highly fed the udder becomes enlarged, and sometimes also where there is a malformation of the generative organs.

TO PREVENT SOWS OVERLAYING THEIR PIGS—A railing or board should be fixed against the sides of the pen of a sow, before the pigs come, about eight inches above the floor, and it should jut out from the sides of the pen from eight to ten inches. When a sow lies down, if a pig or two happens to be under her, they will generally slide out and get crushed between the sow and the sides of the pen. If this railing is fixed around the nest, the sow's back, in lying down, will strike it, and the pig or pigs, sliding from under her, instead of getting crushed between the sow and the sides of the pen, will escape injury by sliding under the railing.

The American Farm Book mentions a horse that died at sixty-seven years of age, and another that was quite coltish in his forty-fifth year. These cases of longevity were doubtless the results of good care. It is never economy to put a horse to the utmost of his strength to obtain a great amount of work, or to feed sparingly to save provender.

The Dairy.

Canadian Dairymen's Association.

ANNUAL MEETING.

The Canadian Dairymen's Association held their third annual meeting, at Ingersoll, on Tuesday and Wednesday, February 2nd and 3rd. A brief session to organize was held in the morning of Tuesday, in the Town Hall, the President, Mr. Chadwick, in the chair, and Mr James Noxon being Secretary. The Chairman, at the request of the meeting, nominated the various committees, who were instructed to meet and report in the afternoon.

Business was resumed about two o'clock, and the committee reported the following order of proceedings:—

1st. The President's address.
2nd. Reports of Committees.
3rd. To what extent has the system of making cheese once a day been practised last year? Have card mills been generally used, and what have been the results?
4th. Proper treatment of acidity in cheese making.
5th. Rennet—Its nature and varied effect.

An adjournment from six to half-past seven, and for the evening session Mr. Willard's address.

The report was accepted, and Mr. Chadwick then delivered his address.

PRESIDENT'S ADDRESS.

The opening remarks of this very able and interesting address, of which only a brief summary can be given, referred to the improved condition and rapid progress of Canadian husbandry, and to the material prosperity of the country. Much of this improvement was due to organization, such as that by which the meeting was brought together, and to the consequent spread of information and stimulus to enterprise. The Association, though but in its infancy, had proved of very great advantage to the dairy interest; but it must not rest satisfied with its present position It should be the aim of all connected with it to extend and perfect its influence and efficiency The labours of the dairyman for the past year have been abundantly rewarded, a ready and satisfactory market for his products has been found, and a more than full average, both in yield and price, has been obtained, and the year closed with light stocks in both the productive and consumptive markets of the world. To maintain our success, it is necessary we should continue to furnish only the best article, and avail ourselves of all the aid to be derived from science and the practical experience of others. Provided Canadian dairymen can meet the tastes of their customers, the foreign demand for their products is likely to be permanent. The report of the Association for the last year, now published, was justly a source of much gratification, and gave good evidence of what had been accomplished. After referring to the interesting and instructive character of the American Convention which he had attended, and which strikingly showed what organization can effect, the President observed with respect to the Canadian trade, that the statistics of the cheese production for Canada were not to be accurately obtained, owing to the imperfect and irregular returns from the different factories "I have endeavoured to obtain as correct a statement as I possibly could of the amount shipped at the Ingersoll and Woodstock stations of the Great Western Railway, which amount I find to be—from Ingersoll, 2,237,687 lbs.; from Woodstock, 256 867 lbs. This is about 40,000 boxes, at a cost of $350 000. And of this sum $315,000 has been paid by two Ingersoll buyers alone. These few figures give some idea of the extent to which the business has been developed in a very few years, and it is, I think, destined to be very largely and very rapidly increased. Of the durability and still more complete development of the factory system there can be no doubt, and this fact is beginning to be generally acknowledged. The importance, in connection with this industry, of all the light of science is fully admitted, and the absolute necessity of a liberal education more than ever felt. It should be remembered that there are products quite as important to the farmer in this age as wheat, corn, cheese, choice animals or delicious fruitage; these are, elevating ideas and ennobling sentiments, products which can be grown through every month in the year, uninjured by cold or heat or rains or drought. Our ordinary business should be but secondary to the growth of the higher faculties. The man should be more important than his occupation, and not merged in it. This is an age that demands the highest improvement in every department. Society is moving upward and onward, and the farmer must move with it. Success in agriculture is not completed by adding barn to barn and field to field; however desirable this may be, yet I consider that he is an unsuccessful farmer who has not improved *himself* from year to year, constantly ministering to the comfort of the household, cultivating the heart as well as the soil, imbued with the idea that if we wish to see our country accomplish its highest destinies, we must have loftier objects of ambition than the mere attainment of wealth, at the same time appreciating the dignity of labour, also realising that labour becomes ennobled under the guidance of enlightened judgment, bringing in its turn a thousand blessings."

He congratulated the society on the re-engagement of Mr. Willard to deliver the annual address, and referred with pleasure to the satisfactory financial report of the year, urging all the members, in conclusion, to bestir themselves in promoting the extension and welfare of the Association.

After the reading of the address, the first question, in reference to *Making Cheese once a day*, came up for discussion.

Mr. YATES, of Belleville, said he was connected with a factory where the system had been adopted, and had been found to work well, saving labour, and producing cheese of a better quality and firmer texture. They used the milk of from 700 to 800 cows, divided over seven beats, the farthest point being about seven miles distant. In the evening the milk was put into the vats, to some of which ice in pails was applied, and in others Sterling Aiguire's Milk Agitator was employed. The Saturday evening's milk was in this way kept over till Monday, and had not been found deteriorated, except for a short time during the very hot weather. There was a slight difference in the cheese of Monday's make, but not enough to require any selection or culling in the sales. Preferred the Agitator to the ice, as it kept the cream from rising, which, if separated, could not again be properly incorporated. Cheese was considered better if made from a portion of old milk, provided it was sweet. Used 300 gallon vats, setting about 2,000 pounds of milk in each. The average yield of cheese had been 9 40 pounds to the 100 pounds of milk.

Mr HARRIS had also adopted the plan of making once a day, and employed the Agitator. He coincided with the previous speaker.

Mr. LOSEE, of Norwich, had tried the plan for two years with satisfactory results, producing a better yield, of better quality, with less labour. It was necessary to have the milk come in early, and in good condition, rejecting all that was not so. Had two vats of 500 gallons each, and used about 3,000 pounds of milk each day. The average yield of the past season had been a little under 10 pounds to the 100 pounds, and had sold at an average price of 12½ cents.

Mr BALLANTINE, of Stratford, had also tried the plan, but could not altogether endorse the views of the previous speakers He thought it was absolutely necessary to the production of fine flavoured cheese to get rid of the animal odour from the milk, for which purpose a certain amount of exposure to the air was essential—that mere reduction of temperature did not effect the object. He acknowledged that Mr. Losee's make on the once a day system was

of prime quality, which he attributed to his extreme care in manufacture, and the good condition in which his patrons had been educated to deliver the milk. In his own experience he had found the plan of making twice a day the better practice, and thought it impossible to make a first quality cheese from entirely new milk.

Curd Mills.—Mr. GRIFFIN said he had found benefit from their use in producing a better texture of cheese. There was, however, considerable difference in these machines, some of which scarcely altered the condition of the curd, and others tore it asunder too much, and thereby deprived it partially of its richness. The curd should rather be ground fine than torn asunder. In very hot weather he had used a temporary press, in which the curd had been subjected to slight pressure before adding the salt,—the curd mill being used twice, before and after the addition.

Mr. FAGEY said that he had used the curd mill during the past season, and found advantage from it. Sometimes, however, he had observed that cheese, so treated, lost a portion of its richness during the curing. This he attributed to some imperfection in the curd mill, for in other establishments, where a different kind of mill was in use, this difficulty had not been experienced.

Mr. FARRINGTON thought the discussion a very important one, particularly in reference to the first question, which had brought out some points of special interest. He did not think that the subject of the animal odour of milk had been definitely settled—some eminent physiologists contending that its presence was not an essential condition, while others maintained that it was present in all milk, without being derived from any extraneous causes. He thought the night's milk would have more of this odour than the morning's milk, and, for this reason, required time and exposure to get rid of it; while the morning's milk, being comparatively free, might be made up at once, and that hence the mixture of the two was not injurious to the flavour of the cheese. During the day, the cow was heated, perhaps excited and over-driven, and the milk was of too high a temperature, feverish and odorous; but, during the night, the cow being cool and quiet, the morning's milk was destitute of the animal taints. He thought it best, however, that in all cases there should be some interval between the time of receiving the milk and commencing operations in the vat. The plan of making once a day was universal in the States, and quite successful.

The question was laid on the table.

Acidity in cheese-making was the next subject brought forward for discussion. Mr. FARRINGTON explained that the cause of this acidity was the partial conversion of the sugar of milk into lactic acid. When this change had not commenced—when milk was used too new—the subsequent fermentation was apt to be too violent and to result in huffiness in the cheese. The proper degree of acidity was a matter to be learnt mainly by experience.

Mr. LOSEE said that the application to the curd of a hot iron, heated short of redness, gave a sure index of the right degree of acidity. When this was reached, the curd so treated could be drawn out by the iron in small sticky fibres.

The next topic for consideration was *Rennet*; and, as no one was prepared to open the discussion, Mr Farrington read an essay which had been delivered before the American Dairymen's Association, at Utica, on the same subject. The substance of this paper is given elsewhere, in the report of that convention.

Mr WELD, of London, diverged from the dairy business to pork-packing, and condemned the interference of Americans, who foisted in the market an inferior quality of swill-fed pork, which was calculated to damage the reputation of the Canadian articels.

Some one present asked if it was profitable, at the close of the season, to make cheese out of skim milk, rather than feed it to the swine.

Mr. BALLANTINE thought the profit depended upon the market, and that there was not at present any demand for skim milk cheese.

Mr. FARRINGTON was of opinion that at the end of the season—say after the 20th of November—it was best to adopt the American plan; skim part of the milk, and use only part whole milk, mixing the two together, from which to make the cheese. To make pork out of milk when cheese was fifteen cents a pound, was dear pork.

An animated discussion on this point ensued; some members concurring in the views of Mr. FARRINGTON whilst others, and Mr. CASWELL especially, most earnestly deprecated the practice of skimming the milk—a practice likely to be very much abused, and to deteriorate the quality of Canadian cheese. He contended that without skimming, even at the late season, cheese of the very best quality could be made by extra care; adducing in evidence of this statement the success of Mr. Sackrider, who had, so late as after the 15th of December, manufactured cheese of the finest quality, and that commanded the highest price. There was no practical difficulty in incorporating an additional quantity of cream in cheese-making, as was shown in the case of Stilton cheese.

The subject of *sour cheese* was brought up, and it was stated that cheese of this description need not be sold at a loss, inasmuch as if properly branded, and not smuggled in, there was a market for it in Liverpool, where cheese of this description was in limited demand for a certain class of consumers. It was necessary, however, that only a small proportion of this sour cheese—say four or five in a hundred—should be mixed with the better sort.

The benefit to be derived from cutting and cooking food was then briefly described. Mr. BAILLEY, of Norwich, spoke in favour of the practice, having found cut hay, scalded and steamed, much more nutritious than cut food given dry. A saving was effected in the grain required, as he had found two quarts of grain fed in this way keep the animals in as good condition as four quarts mixed with dry hay.

Mr. FARRINGTON adduced the instance of an American dairyman, Mr. Hopkins, of Herkimer county, who had proved the advantage of cooked food by a very conclusive experiment. He divided his cows into two lots of twenty each, and to one lot fed dry food, to the other cooked. In the latter case the flow of milk increased; while in the former it materially fell off. On reversing the trial, and giving the cooked food to the lot that had previously been fed on the dry, a corresponding change took place in the flow of milk, which again rose in the second lot fed with the cooked food, and fell in the other.

A brief discussion was brought up on the practicability of using windmills for pumping water for stock or dairy purposes. It was stated that these mills could be erected at a small cost, and had been found very serviceable in certain cases.

The meeting then adjourned until evening.

EVENING SESSION.

In the evening the convention met again at half-past seven. The hall was crowded to overflowing, and among the audience were a large number of ladies. In the absence of the President, from indisposition, the chair was occupied by the Vice President, Mr. George Hamilton, who introduced Mr. Willard to deliver the

ANNUAL ADDRESS.

This was a very able and instructive essay on milk and its products, of considerable length, occupying nearly two hours in the delivery, full of interest, and abounding in practical suggestions of great importance to dairymen and farmers generally. It is impossible in these columns to give the address entire, and any synopsis would fail to do it justice All that can be attempted is to give the leading points.

Mr. WILLARD commenced by expressing in very graceful and cordial terms the warm regard which he entertained for the Canadian branch of the great Anglo-Saxon family, and in this feeling he was satisfied he represented a large class of the most enlightened American citizens, whose minds were not warped by narrow sectional views, and who could rejoice in the prosperity of a sister nation so closely allied to them in blood and common interests—sentiments which were received by the audience with warm applause. He then entered on the special subject of the address by remarking that the natural home of the milk produce was a belt between the 40th and 45th parallel of latitude, stretching from the Atlantic to the Mississippi, and probably to the Pacific, comprising most of the Northern States and a large part of Canada. Of this belt only about a third is adapted to dairying. The dairy lands are quite irregular and not always contiguous. The best are characterized by high undulating surfaces, an abundance of never-failing springs and streams, a soil retentive of moisture and clothed with nutritious herbage of an enduring and hardy growth, a moderate temperature with an even rainfall, and a sufficient covering in the winter to protect the grass roots. Within this northern belt there is no description of farming that promises to be more profitable than the dairy, leaving out of the account such special cases as those situations which are peculiarly fitted for market gardening and fruit-growing near large cities. Compared with the chief branches of farming, dairying has the widest market and the least competition. It also gives peculiar opportunities for a mixed husbandry of the most remunerative kind, including that of raising the finest stock. The dairy farmer deals in three kinds of commercial product, milk, butter, and cheese, the last two highly concentrated articles of food of universal consumption and easy transport. In New York the question of comparative profit has been closely studied for years, and they have learnt that it is useless to compete with the West in grain, or with Texas and other sections in wool or in cattle; whereas, the demand for dairy produce has steadily increased, and the price has fluctuated less than that of other products. The annual yield of the dairy and grazing land is also more uniform than other branches of farming, and the nature of the husbandry rather enriching than exhausting to the soil.

The great question of dairy farming, especially since the introduction of the factory system, has been the possibility of over-production. But experience and statistics, thus far, have shown that both in Europe and on this continent production does not even keep pace with the demand. In the article of butter especially, though there has been a large increase, there is a great deficiency in the production. Everywhere in cities you hear loud complaints of the difficulty of procuring good butter, and the monstrous price at which it is sold. This deficiency is attributed by some to the operation of cheese factories, but is rather to be accounted for by the increase of population and the gormandising habits of the people in the use of butter. There are no such butter eaters in the world as the Americans. Everything that they cook must be swimming in butter. Irish domestics who never ate a pound of butter during their whole lives before reaching these shores, seem never able to get enough of this unctuous food Indeed, the waste of butter on this side of the Atlantic is frightful; and certainly the dairyman's prospects in this direction cannot be said to be at all discouraging.

In the article of cheese, also, there is a greatly increased demand for home use. The production of American cheese has advanced from 103 millions of pounds in 1860 to 270 millions of pounds in 1869, and yet the amount exported is but little increased. In addition to the growing use of cheese at home, the distant market has been largely extended by new railroads, and it is possible that the cheese factories of the country will be taxed to their highest capacity to supply the demand.

In the remaining branch of the dairy business there is also a rapidly increasing consumption, and it becomes a matter of no small difficulty to supply the cities with fresh milk. The real question for the dairymen should be so to equalize the supply of the three products—milk, butter, and cheese—that the highest price may be obtained for each. The difficulty to be guarded against is not so much the

over-doing the dairy business as disturbing its equilibrium

The difficulty of providing an adequate supply of fresh milk has led to the introduction of a process for condensing milk. An establishment for this purpose has been in operation for some time in Elgin, Ill. City consumers who use this condensed milk prefer it to fresh milk as it is usually sold, and find it both cheaper, and every way more convenient for use. The condensing process consists in evaporating the milk at a temperature short of 212°, until it has lost 75 per cent. of its watery constituents. It is thus reduced to a thick fluid of the consistency of syrup, and is then put up in hermetically sealed cans. The greatest attention is paid in the first place to having the milk pure and in perfect order, and in the process of condensing, it is repeatedly strained In some cases sugar is added during the operation; but this is not essential. This milk is sold at a price equivalent to fourteen and a half cents per quart of fresh milk, and as the cost of the process cannot exceed four cents, this brings the value of the milk to ten cents a quart.

Another branch of the dairy business that has been found very profitable in New York is the creamery, or butter factory. In these establishments the milk that is delivered by the farmers is partly sold as fresh milk or cream, and partly made into butter or "skim cheese." It has been found that fourteen quarts of milk will make, on an average, one pound of butter and two pounds of skim cheese The milk is not robbed of all its cream, and the cheese is sold at a price but little below that of whole milk cheese; while the butter is of the very best quality.

The speaker then adverted to the extreme importance of farmers being trained to keep correct accounts, so as to sell in accordance with the cost of production; and he deplored the lamentable defect of this principle of sound business economy among the great majority of farmers.

In reviewing the operations of the past year, three great lessons were taught.

1st. That a low, even temperature, and a comparative humid atmosphere in July and August are of service in preserving cheese in flavour, and hence that more attention must be given to the construction of curing rooms, so as to meet the conditions of our hot dry weather.

2nd. That a healthy consumptive demand for cheese does not depend upon extreme low prices.

3rd. That there are markets and an outlet for our whole product at a price above cost.

The opening up of new railroads has dissipated all fear of over-production, and as new territories thus reached become peopled, the American dairyman will soon cease to export, and may even be compelled to purchase from Canada as their nearest market. Good cheese, of the finest quality, Mr. Willard contended, should be worth eighteen cents. Of the poor grades it did not much matter what was the price, and the makers of such needed the sharp lesson of loss to compel the adoption of a better practice. There is no profit in producing a poor article.

Mr. Willard next referred to a new economy introduced into the dairy system, namely, the manufacture of whey butter—that is, butter from the whey after making cheese. As much as twenty pounds of butter can be made out of 500 gallons of whey, and the quality of the butter, if properly made, is such that it can with difficulty be distinguished from the best cream made article. Moreover, after the process the whey is just as nutritious food for hogs as if the butter had not been extracted. Hence there is a great waste in omitting the manufacture of this article from the cheese factory system.

Adverting to the profits of dairy farming in Herkimer county, the speaker mentioned the great loss which had resulted from the prevalence of abortion among cows, and suggested that it might become advisable as a remedy for this evil to adopt the plan of spaying the cows—an operation comparatively free from danger, and which offered many advantages, especially to dairies for the supply of city milk. It is affirmed as the result of experiments that a cow thus operated upon in her sixth year, and about forty days after calving, will continue to give the same flow of milk as long as her owner chooses to keep her.

The next topic touched upon was the necessity of a better concentration of forces and more thorough work—the determination to do at least one thing well instead of so many things superficially. This was especially necessary in the dairy business, in which a good article always realized a profit, while a poor one might be sold below cost It costs no more to make a pound of butter that will sell readily for fifty cents, than a pound of grease that goes begging at ten cents. The requisites for producing a good article of butter were the following;

1st. Securing rich, clean, healthy milk, obtained, if possible, on rich old pastures free of weeds.

2nd. Setting the milk in an untainted, well ventilated atmosphere, and keeping it at one even temperature—from 55° to 60°.

3rd. Proper management in churning.

4th. Thoroughly expelling the buttermilk, and working so as not to injure the grain.

5th. An even incorporation of pure salt, and packing in oaken tubs, tight, clean and well made, and storing in a perfectly sweet cellar.

Cleanliness in all the operations is an imperative necessity.

The best plan for securing an even temperature is to set the milk in vessels plunged in cold spring water; but in the absence of this convenience, a good method is the use of the Jennings' pan, which is a double receptacle, the inner one of tin for the milk, and the outer one of wood, with a space between for cold water.

Some details were given of the manufacture of Philadelphia butter, in reference especially to samples which were shown as the recent Dairymen's Convention in Utica. In the preparation of this choice article, the chief points attended to were, 1st. The food of the cows; 2nd. The temperature; 3rd. Neatness and dainty refinement at every step, from the moment the milk flows from the udder till the dollar in currency is paid for the pound of butter. In regard to the food of the cows, nothing had been found superior to clover or early mown hay. Indian meal was considered an important adjunct. Roots, with the exception of carrots, were not used. The temperature of the milk and of the churning old not vary much from 58°. In the after manipulation the butter was handled as little as possible The purest salt is used in the proportion of an ounce to the pound. The mass is made up in pound balls, neatly printed, wrapped in a linen cloth, and sent to market in cedar boxes lined with tin.

The subject of curing cheese was next considered In this process an even temperature of about 70° was the great desideratum; and the maintenance of such a temperature in the curing room during the hot summer months is the chief problem for practical men to solve. The past exceptional season had, from its low temperature, been peculiarly favourable, and had no doubt contributed much to the improved quality of the cheese of 1869. The proper temperature favours the breaking down of the tough curd, or casein, into the mellow, rich substance of the best cheese. Properly cured in this way, the cheese may be none the worse for the abstraction of part of its cream.

The speaker referred again to the importance of a home market for cheese, and the advantage of encouraging a home consumption of the article. One means of doing this was the manufacture of smaller cheeses—such as could be sold whole for $2 or under.

Some observations were made on the cheese production of Great Britain, the amount of which varied but little, and Canadian Dairymen were warned against putting faith in unfounded reports of any large increase of the cheese crop of that country—reports set forth to induce a lower price for the Canadian article.

The address concluded with an appeal to farmers to see that they faithfully performed their first and essential part in this important industry, by providing clean, healthy milk for the production of good cheese and butter. There must be scrupulous cleanliness, and gentleness in the treatment of the animals. All nervous agitation is highly injurious to the quality of milk. In laying out farms, reserve the uplands for pasture and the lower lands for meadows. Use variety of grasses in pastures. Provide corn fodder at the rate of an acre for every eight cows, so that when pastures begin to fail in July and August, there may be an abundant store of succulent food at command to keep up the flow of milk, and in this way both land and stock will be turned to profitable account.

At the close of the address, the speaker was warmly applauded, and a vote of thanks was proposed by E. C. Bodwell, Esq., M. P. P., who justly eulogised the instructive character and literary merit of the address, cordially reciprocated on behalf of Canadians the fraternal feelings to which Mr. Willard, as the representative of his countrymen, had given utterance, and trusted that friendly relations would continue, and be yet more closely cemented, alluding in passing to the importance of liberal commercial arrangements on both sides

The resolution was briefly seconded by Mr. Weld, and enthusiastically responded to by the audience rising and cheering heartily.

A vote of thanks to the ladies for their presence and encouragement was then passed, and the meeting adjourned till ten o'clock on the following morning.

SECOND DAY'S PROCEEDINGS.

MORNING SESSION.

On Thursday morning the Convention met again, and Mr. Chadwick opened the proceedings by calling for the Second Report of the Committee on order of Business. This was presented as follows:

1. Report of Committees. 2. Election of Officers. 3. Place of meeting. 4 What has been the general reputation of our cheese in the English market, and what are the defects to be overcome to bring it nearer the standard of the best English cheese? 5. Hoof disease. Has it prevailed among dairy herds, to what extent, and the best mode of treatment. 6. The best variety of corn for soiling, and where pure seed can be obtained. Adjournment from twelve to one. Financial report, and any other subject relating to the dairy or dairy farming.

This report was accepted, and the Committee on Nomination of Officers presented their report, naming for President, James Noxon, of Ingersoll; for Vice-President, W. S. Yates, of Hastings; 2nd Vice-President, Thomas Ballantine, of Perth; Secretary-Treasurer, E. A. James, of Ingersoll.

This report was also received, and the officers declared duly elected.

The next business in order being the choice of a place of meeting in 1871, it was moved by Mr. HAMILTON, seconded by Mr. BALLANTINE, that Ingersoll be the place appointed.

Mr. DALY, of Belleville, moved in amendment that Belleville be chosen. In support of his motion, Mr. Daly submitted that Belleville was situated in the midst of a good dairy district, where the factory system had been for some time in operation; that it was desirable to extend the benefits of this association and the influence of these conventions to other centres, and that the interests of the Association itself would be thereby promoted. He would only ask for the meeting to be held there one year, and would guarantee the hearty co-operation and friendly offices of the people in his neighbourhood to their visitors on the occasion, as well as an increase in the number of members from that district, and was perfectly willing that after next year the place of meeting should, if it were thought best, be permanently fixed at Ingersoll.

The amendment was seconded by Mr WELD, and supported by Mr. FARRINGTON, who, while conceding to Ingersoll the undoubted prior claim, and he might

ny the right, to the appointment, contended that considerations of the general interest favoured the removal of the Convention for at least one year to some other point. The Association professed to be Provincial, but was in fact local.

Mr. CASWELL enquired what had been the practice in New York State.

Mr. WILLARD replied that with the exception of the first year the meetings had always been held at Utica, though several efforts had been made to move it to other places. Utica was selected chiefly as being most central.

Mr. NIXON thought that the slight attendance at Roseneil of members from Hastings did not give evidence of a very warm or extended appreciation of the privileges sought, and that they had no guarantee, even by a constitutional rule, which was itself subject to change, that if the meeting were once held at Belleville, it might not be voted there permanently by an overwhelming local majority, for it must be remembered that they had to deal with ordinary human nature, in which self-interest was ever paramount.

The amendment was put and lost. The original motion was then submitted, and carried by a very large majority.

The Quality of Canadian Cheese being the subject first in order, the Chairman called on Mr. CASWELL to open the discussion. He stated that during the past season the quality had been, on the whole, better by far than that of last year, owing in part, no doubt, to the season, but not entirely so, for the improvement had been specially marked in certain factories, whilst others had deteriorated. He had shipped very extensively, had been extremely careful in inspecting and testing every lot, branding each, according to its true quality; and he had invariably observed that where a defect had been noted on this side, a corresponding depreciation in the price had resulted on the other. He had taken pains in many instances to trace the cause of the defect, and had found it attributable in some cases to want of cleanliness in the milk cans, in others to some fault in curing, to the use of bad rennets, and to a loss of cream. The most frequent complaint against certain cheeses was that they were "short of meat." In consequence of these differences of quality, the prices he had received had varied from $1 to $7 per cwt. in the same shipment. The first desideratum for cheese in the English market was quality, the next flavour. The best means to secure the finest quality were, in his opinion, besides scrupulous cleanliness throughout, the nicest care, an even temperature, and good ventilation in the curing-room—no factorymen should ever allow their cheese to be shipped before it was perfectly cured, and most emphatically no skimming should be permitted.

Mr. FARRINGTON observed that defect in cheese was often attributed to skimming where none of the cream had been removed, the faulty condition being due to some other cause. June cheese, for instance, was apt to be tough and to possess the appearance of skim cheese. The proper remedy in this case was to employ a lower temperature, and to continue the process longer. Some enquiry having been made on the effects of using the curd of the stomach with the rennet, Mr. Farrington had found no benefit whatever to result from the practice; but, on the contrary, it was apt to impart a sour flavour to the cheese.

Mr. DALY called attention to the importance of a prompt delivery of the cheese at its destination, and cited instances where cheese had been detained in the vessel after its arrival at Liverpool for several days, had heated in consequence and suffered damage. He was pleased to be able to state that notwithstanding all these difficulties, he had found during a recent visit to England that the reputation of Canadian cheese was greatly raised, and he had seen samples of our manufacture in Liverpool that were considered equal to the finest fancy brands.

At this stage of the proceedings the meeting adjourned till one o'clock.

AFTERNOON SESSION.

Corn for Soiling was the first subject taken up, though not first in order. Mr. GALWAY had used it and found it advantageous as green food when pastures were short, and when it was cured and fed dry it was more nutritious and productive of milk than the best hay. His method of growing it was to plant on sod ground, ploughed and harrowed, in drills sixteen inches apart, using two bushels or two and a half for seed per acre.

Mr. BAILEY also testified to the value of this fodder, but his mode of culture was somewhat different. He chose rich ground, setting the rows as much as three feet apart, using three bushels of seed to the acre, and cultivating assiduously.

Mr. A. GARNER, of Drummondville, had found the best results from sowing the corn broadcast.

Mr. JAMES would not sow far apart, preferred sod land, was careful to put in the seed early, by about the 28th of May, and, if possible, not later than the 2nd of June. Had cut the crop last year with a reaping machine the process by hand being tedious and expensive; had harvested with the reaper about four acres a day; preferred to cut while the plant was yet green and juicy, about the 1st of September. After cutting, left it for three or four days on the ground, then gathered it and piled it in shocks or stooks in the usual way, hauling it away by a team and chain during the winter as it was wanted. By this feed he estimated more cows could be raised on the same land, one acre of corn being equal to five acres of meadow, and not more exhausting to the soil than grass. The Western corn was the variety best adapted for the purpose. It was to be procured from the Western States, and he recommended the purchase of selected seed corn.

A paper on pastures was received from Mr. MACKELCAN, of the CANADA FARMER, and reserved for publication in the official report of the Association.

Hoof Disease.—A paper on this subject was read by Mr. HARRIS. The disease affects only the hind feet, is attended with inflammation, suppuration, and sometimes results in the loss of the hoof, and prevails most in the winter. The treatment he recommended was making a couple of incisions on each side of the leg above the hoof, and inserting into the cut red precipitate and garlic.

Some desultory discussion ensued, and it was evident that there was not a sufficient discrimination in the nature of the disease, which was by many confounded with foot-and-mouth disease, or with the effects of inflammation and gangrene from frost.

Mr. WILLARD said that the method of treatment adopted in Herkimer County was either corrosive sublimate applied to the sores, to promote suppuration, or red precipitate applied to the surface without any cutting of the skin.

FINANCIAL STATEMENT, ETC.

The Finance Committee gave in their financial statement, which showed the receipts for the year to be $306 49
The expenditure..... 268 86

Leaving a balance in hand of..... ..... $ 37 63

A vote of thanks was given to the Executive Committee for the very efficient manner in which they had discharged their duties during the past year.

The question of the best breed of cattle for the dairy was slightly discussed, Mr. James giving the preference to grade Durhams, and Mr. Farrington, looking more at the milking quality than the breed, preferred, on the whole, cows of comparatively small size.

On the subject of salt it was generally conceded that the quality of the Goderich salt would be superior to any if it were only drier. In consequence of the defect of moisture, preference was given by some to the best Onondaga or the Liverpool dairy salt.

After a vote of thanks to the retiring President, the Convention adjourned about four o'clock.

American Dairymen's Convention.

In consequence of our failing to receive, in due course, an exchange copy of the *Utica Herald*, containing a full report of the Dairymen's Convention held in Utica, we have not been able to give an earlier notice of this important and interesting meeting. From a supplementary copy of the *Herald*, kindly furnished by the publisher, we condense the following record of proceedings, and regret that our limited space precludes a more detailed account, for the meeting appears to have been of the most interesting and instructive character.

The convention met on the 12th of January, and, in the absence of the President, Hon. H. Seymour, the Vice-President, Hon. F. G. Alvord, occupied the chair, and opened the meeting with an appropriate address. The morning session was then occupied with the usual preliminary business of appointing committees, &c. In the afternoon, some reports of committees having been received, and among them one upon the subject of the tax on the sale of cheese, it was resolved to petition the Legislature for the repeal of the same.

Professor James Law, of Cornell University, then delivered an address on "The feeding of cattle in relation to their health and produce."

It was, he said, a matter of sincere congratulation that two of the maladies most dreaded by the stock owners of the old world—rinderpest and epizootic aphthæ—were happily unknown on the American continent. The Texan fever, now that the mode of its propagation is known, need never again find its way north of the thirty-fifth parallel of latitude. Pleuro-pneumonia alone threatens our doors, but as the cattle trade is almost exclusively from West to East, the disease will continue to hover around our Eastern homesteads wherein circumstances are favourable.

"If the cattle trade went from East to West, not only Western New York, but the vast States of the East must be devastated. The sound policy for the American agriculturist to pursue in regard to this disease is to make a vigorous and sustained effort to annihilate it, until the last affected beast has perished. He referred to the various constituents of food, and the importance of giving such as would supply the animal with the requisite material for repairing the waste continually going on in the body, and for maintaining health. Cows which are yielding milk and are pregnant experience a large demand for tissue-forming elements, that neither their own system nor that of their progeny may suffer in nutrition or development.

A certain amount of liquid in intimate connection with the proximate principles will serve to facilitate their assimilation, and thereby increase their value. As an example of this, he said a bullock may be kept in fair condition on one hundred and twenty pounds of turnips daily, but could not be supported on eight or nine pounds of hay, though as

judged by their relative amounts of proximate principle, their nutritive value should be nearly the same. The plentiful supply of liquid to the blood and tissues not only favours the destructive and reparatory changes in those, but maintains in full activity the various secreting organs. To combine the requisite objects, roots were especially adapted as food for dairy cows, and when their value was better appreciated would, no doubt, come to be extensively grown on this continent, as they had long been in England and Europe generally. In conjunction with these, corn or pea meal should be given in due proportion. The advantage of cooking food, and giving it slightly warm, was referred to, as well as the importance of variety in the diet. A brief but comprehensive review of the various diseases arising from errors in feeding concluded the very able address.

Mr. Willard next spoke on the profits of dairying. He dwelt on the necessity of every farmer keeping an exact account of profit and loss, so as to be able to regulate outlay and prices.

Reference was made to the profits of other branches of the dairy besides cheese-making, and statistics given to show that at present butter is a far larger and more valuable production than cheese; for while the cheese made last year amounted to about thirty-six millions of dollars, the butter during the same period reached nearly two hundred and ten millions. "The butter dairymen," said Mr. Willard, "have been very quiet. They have organized no societies, but have pocketed their profits without a word of complaint." Certain buttermen make 240 pounds of butter from each cow, for which they receive one dollar per pound the year round. This gives a profit of $240 per cow, to say nothing of the skimmed milk. With regard to the production and consumption of cheese, it was stated that last year's produce was 230,000 000 pounds, nearly two-thirds of which were absorbed by the home market. The consumption of cheese on this continent has very much advanced, in consequence of the increased population, the opening up of new railroads and the improved quality of the article. He recommended the manufacture of small cheeses for home use, as they would be more convenient to retail dealers and consumers. Upon home consumption the dairymen must chiefly depend for the maintenance of remunerative prices, which should be regulated by the dairymen themselves, on the basis of the cost of production, and not by the dealers and shippers, whose object, of course, is to lower the price at which they buy from the former. It was for this reason that co-operation among dairymen was so important.

The speaker next referred to a branch of dairy industry which has recently been found especially profitable—the production, namely, of condensed milk, which had been very successfully carried on in Elgin, Illinois; and estimated that the milk so disposed of realized a profit of ten cents a quart.

The practice of spaying cows was briefly adverted to—an operation said to be neither dangerous nor difficult, and to secure the following advantages: 1st. An increase of one-third in the quantity of milk. 2nd. A uniform quantity. 3rd. Freedom from accidents to which the cow is liable during periods of heat. 4th. Immunity from the accidents of gestation and calving. 5th. Greater disposition to fatten when the animal is dry. Mr. Willard, in conclusion, strongly urged the necessity of organization and concerted action among farmers.

The committee on prize essays next delivered their report, and announced the award for the best essay on cheese as an article of food in favour of Mr L. B. Arnold, of Ithaca. The successful essay was read at a subsequent stage of the convention.

The election of officers was the next business taken up, and resulted in the appointment of the following officers for the current year:—President, Horatio Seymour, of New York. Vice Presidents, Hon. T. G. Alvord, New York; Anson Bartlett, Ohio; X. A. Willard, New York; Sandford Howard, Michigan; Henry Wade, Canada West; O. S. Bliss, Vermont; Moses Hawks, Illinois; Asahel Burnham, New York; —— Bartholomew, Massachusetts; G. H. Kliphart, Ohio; T. S. Harison, New York; N. W. Woodfine, North Carolina; C. H. Wilder, Wisconsin; John M. Webb, New York; S. M. Wells, Connecticut; H. Calmes, Kentucky; Levi Wells, Pennsylvania. Secretary, G. B. Weeks, Syracuse, New York. Treasurer, Dr. L. L. Wight, of Whitesboro, New York. The names of G. B. Moss, of Greene County, and C. B. Chadwick, of Canada, were subsequently added to the list of Vice Presidents.

Mr. Arnold, of Ithaca, next read a paper on rennet, its nature and use. The subject was treated in a very comprehensive and practical manner, and no adequate idea can be given of the merits of the essay by such brief notice as can be given in this place. It was shown that the old idea of the active principle in rennet being an acid must be abandoned, as disproved by many experiments, and that its action was rather due to the presence and development of organic matter, composed of an almost infinite number of extremely minute cells. These organic particles retained their vitality, so to speak, under a great variety of conditions, but were destroyed by a high temperature, though how much below 212° did not seem to be exactly determined. These infinitesimal bodies, though insignificant, comparatively, when acting alone, work out most important results in their aggregate, and are the cause, not only of the coagulation of milk into curd, but of the subsequent change of the curd into cheese.

The structural nature of the active agent in rennet renders it susceptible of separation from the disagreeable odours that usually accompany it. To accomplish this has long been a desideratum among dairymen. It may be done by filtering rennet through charcoal. If the coal is finely pulverized, and thoroughly saturated with water so as to prevent the cells from lodging in its cavities, they will nearly all pass through with the fluid that contained them, while the odours will all be taken up by the absorbent power of the coal. A filter for this purpose may be made by perforating the bottom of a butter tub, or anything similar, and laying several thicknesses of muslin on the bottom to catch the coal dust; then lay on two or three inches of pulverized coal and on it one thickness of muslin; then lay on clean sand enough to hold the coal in its place. The sand will assist also in distributing the rennet over the whole surface of the coal. Then pass water through the filter till it will run through clear. The liquid rennet may then be passed slowly through by falling upon the sand in a stream proportioned to the size of the filter, when it will come through sweet and pure, with its efficiency but little abated. Rennet thus deodorized loses all tendency to huffing, and also its ability to give any bad flavour or smell to the cheese.

There is another method of deodorizing rennet that is more convenient, but not quite as perfect as the one just described. It consists simply in putting a small quantity of carbolic acid in the water, or whatever liquid the rennets are soaked in. Carbolic acid is a very powerful disinfectant, and a small quantity will neutralize the odours in a batch of rennet. Ten drops to a gallon of water are sufficient. It does not act instantly. It unites with the water slowly, and is slow in deodorizing the rennet. It should be put in at the time of putting them to soak, and by occasionally stirring it will have accomplished its work by the time the rennet is ready for use. If too much acid is used, the rennet skins will be dissolved, and animal matter be carried into the cheese, producing effects worse than if the acid had not been used. The difficulty of obtaining the acid pure is an objection to its use. Carbolic acid is also a powerful antiseptic, and may be used in the place of salt in preserving rennet skins. Under the most favourable circumstances, the use of salt in preserving green rennets occasions considerable loss. If salted and hung up to dry, the best part is lost by dripping, and if packed in brine, so much of the animal odour is retained in the brine as to make its use objectionable. In the use of carbolic acid these effects are avoided. Ten drops of acid are dropped into a bowl of water large enough to cover the green rennet when laid in it, say one pint. The stomach, when taken from the calf, is turned inside out, and carefully cleaned and laid into the acidulated water, and left there five minutes, and turned once in the time, so it shall be sure to be all wet. It is then stretched on a bow or crotched stick and hung up to dry, the same as if it had been salted. It will dry rapidly and without dripping. The acidulated water is turned into a bottle and kept for the next rennet, adding a few drops occasionally to keep its strength good. Five cents' worth of acid would cure a hundred rennets, and may be procured at almost any drug store. The scent of the acid will escape in a little time, and with it will disappear the peculiar odor of the rennet. In soaking, they are treated as if cured with salt. A single rennet cured with acid and used alone, curdled the milk for 640 pounds.

After a temporary adjournment, the convention met again in the evening, and listened to an address by Professor G. C. Caldwell, of Cornell University, on "Fermentation and Putrefaction." The subject was treated at great length and in a thoroughly scientific manner; we can only refer to one or two of its more practical applications. It was shown that fermentation depends on the presence and development of extremely minute organic particles of the nature of fungi; that they were found in milk, and when developed and multiplied, were the cause of its souring and further changes; that they existed also in the air, and were readily absorbed; that they were given off by putrescent or decaying matters, which, hence, tended to induce a similar change of

inorganic matter in their neighbourhood. Certain conditions of temperature, etc., were favourable to the development of these fungi. A Swedish physiologist, Alexander Muller, in the course of experiments with milk, had found that milk was most ready to turn sour at about blood heat, or 98° Fahrenheit—that a temperature either above or below that retarded the souring, but that at a higher temperature, another kind of change took place, one result of which was a disagreeable putrefactive odor; that rapid cooling of the milk to near the freezing point (32° F.) before putting it into the milk room, kept it sweeter; in his experiment it remained sweet twice as long as the other portions which were simply allowed to cool down gradually to the temperature of the milk room—50° to 55° in one case, and 60° to 61° in another. Again, he found that the milk turned sour much more rapidly in closed than in open vessels. In an experiment, he put the milk in two vessels on a stove when its temperature rose to 75°, one of the vessels being closed and the other open. The cream and milk in the open vessel were perfectly sweet after twelve hours, while in the covered vessel, not only were both sour, but a disagreeable odour like that of sweat was emitted; this result shows that if pure sweet milk is essential to success in the manufacture of cheese, the practice of transporting milk warm from the cows is injurious—and if it could be cooled down to near the freezing point before putting it into the cans, less harm would result from confining it in closed vessels while moving it to the factory, and that by all means it should be kept as cool as possible from the time it leaves the cow till it goes into the vats of the cheesemaker. The preservative power of a free exposure of the milk to the air was repeatedly proven by Muller; he found that the shallower the vessel in which the milk was allowed to stand, the longer it would remain sweet; and that, moreover, if a current of atmospheric air or of oxygen was forced through the milk immediately after it was drawn, it remained sweet longer than other portions not so treated.

There are conditions, however, in which exposure to the air, containing as it does the germs of fungi, will bring about the very change under consideration. Then it is known that if the milk is boiled, the organism already in it will be destroyed, and if you protect it from direct exposure to the germs of the fungi in the atmosphere, in a flask whose mouth is closed by a ping of cotton, it may be kept unchanged as long as you will. On the other hand, boil it and expose it to the air again, and it will be found that the souring is retarded—but only retarded.

The speaker then, at considerable length, considered the action of rennet as exemplifying another phase of the existence and development of these minute organisms or fungi, and traced their history in the process of coagulation and the subsequent stages of curing and ripening cheese.

After the delivery of Mr. Caldwell's address, a petition to Congress for the removal of the tax on cheese was submitted and approved, and the first day's proceedings were brought to a close.

SECOND DAY'S SESSION.

The proceedings of the second day commenced with the reading of a paper on ergot, by Professor Prentiss. This was an elaborate and able essay, in which the topic was very fully treated, and illustrated by numerous diagrams and drawings, showing the structure and growth of vegetable fungi, of which the several species of ergot were varieties. The Professor pointed out the poisonous effects of these fungi as exemplified in ergot of rye, on the human subject, and, as he believed, of ergotized grasses on cattle, producing the most intractable cases of abortion. The remedy against this disease of plants can only be sought, in our present imperfect knowledge of the subject, in the general principles of good cultivation; and with old meadows or pastures the best plan would perhaps be to break them up and reseed.

Mr. Lyman, of New York, next gave an address on butter, the very great difference in the quality of which he aptly compared to that of Jeremiah's figs:—

"Those that were good
Were excellent figs;
Those that were bad
Were not fit for the pigs,"

He showed samples of Philadelphia butter, and gave some account of the method of preparing this choice article. A brief abstract of this process has already been given in the report of Mr. Willard's address before the Canadian Dairymen's Association. Mr. Lyman believed that it only required care and attention for any farmer to produce as good an article as the best Philadelphia butter.

Mr. Webb gave a lengthened address on the trade in dairy products during the past year. He showed that the consumption of cheese in America was largely increasing, and its quality was, on the whole, much improved. In England, he believed, deterioration rather than improvement had marked the operations of cheesemaking, and English dairymen were waking up to the conviction that to hold their own they must adopt the factory system. He recommended the use of Nicholl's English fluid annatto to give the favourite colour. He also alluded to the importance of using stronger boxes than were sometimes employed in shipping. He felt sure that there was no fear of over-production so long as a really fine cheese was manufactured.

The next paper read, after some matters of business, was by Mr. Bartlett, of Ohio, on the "Soil, climate, vegetation and water of the principal dairy regions of America." This paper, as well as the others read before the Convention, will be given in full in the forthcoming official report of the proceedings, which we recommend all interested in the subject to procure.

The prize essay on "Cheese as an article of food," was read by the writer, Mr. Arnold, of Ithaca. This was a very able paper, written in a scientific spirit, and gave ample evidence of the wholesome character, convenience and economy of this valuable contribution to our dietetic resources, the advantages of which are thus summed up:—"Besides being, when properly used, a wholesome and nutritious diet; besides being richer in nutritious value than butcher's meat, or any other animal food; besides its peculiar ability to enhance the value and improve the healthfulness of other food with which it is consumed; besides the aid it renders in digestion, its readiness for use at all times without loss or trouble in cooking, its convenient form for handling and transporting; the ease and certainty with which it may be preserved for many months without loss or injury, all commend it to the favour of the public, and especially to the army and navy where it could not fail to prove not only a luxury to our soldiers and sailors, but a cheap, healthful, and substantial substitute for the continued use of salt meat."

The proceedings terminated with a resolution that the next Convention should occupy three days, and the objects of the association be so enlarged as to embrace the subject of butter.

Vermont Dairymen's Convention.

The first meeting of the Vermont Dairymen's Association was held at St. Albans, commencing on the 19th of January and lasting over three days. The proceedings were opened by an address from Hon. E. D. Mason on the benefit of associated effort in Agriculture, as exemplified especially in the dairy interest. He was followed by the Hon. Henry Law, who read an able practical essay on the dairy, advocating among other things the use of sugar beet as food for milch cows. In the evening of the same day, an address on the factory system and dairy management was delivered by X. A. Willard, Esq., who stated that in New York State there had been during the year 1869 over thirty millions of pounds of milk sold, the value of which at four cents a quart would amount to nearly five millions of dollars. The cheese produce of 1869 Mr. Willard estimated at 240,000,000 lbs., and the butter product at 700,000,000 lbs, both together representing a value of $215,000,000. On the second day, Dr. Middleton Goldsmith delivered an address chiefly on the breed and management of dairy stock. This was followed by an paper by Hon. G. D. Alvord, on salt and its uses in the dairy. The afternoon session was opened with an address by O. E. Hubbard, on the breeding of dairy stock. The principal business of the third day was the reading of a paper on Grapes, by Mr. Richard Goodman. All the meetings were well attended.

Dairy Meeting.

A dairy meeting was held in Markham on the 7th of February, when the following questions were discussed:—

1. The comparative profit of dairy farming, and its advantages in maintaining the fertility of the soil.
2. The selection and feeding of dairy stock to secure the largest amount of profit.
3. Cleanliness of the dairy, operations, utensils, and healthy cows necessary to the production of good butter or cheese.
4. The advantage of selling the milk at the farm over that of making butter, considered with a due regard to the value of the whey and skimmed milk.

The chair was occupied by Mr. J. Gibson, the President of the East Riding of York Agricultural Society. The meeting was largely attended. The chairman opened the proceedings in an appropriate speech, and was followed by Hon. D. Reesor, H. P. Crosby, M. P. P., J. Trann, J. Pike, and others.

The benefits of a mixed system of husbandry were advocated and illustrated by most of the speakers, and the peculiar advantages of dairy farming were especially set forth.

Mr. Trann stated that he had kept an accurate account of the amounts realized from his cows yearly during the past three years. From eleven cows in 1867 he realized $600; from twelve cows in 1868 he realized $772; and last year about $850 from thirteen cows. These amounts include butter, cheese and calves sold during each year.

The great benefit derived from feeding green corn, and the use of the dried fodder from the same during winter, were attested by several speakers, and the more general cultivation of these crops on dairy farms was strongly advocated.

Cheese Factories.

J. K., Harper P. O.—You will find an article in the CANADA FARMER of December, 1869, on this subject. If you intend to start one on a large scale, you can get much information by calling on, or writing to, Mr. James Noxon, Ingersoll, Ont. The profits will depend greatly on the facilities for obtaining a sufficient supply of milk, and the quality of the cheese manufactured. Last year the business was a very profitable one in good hands. But little, if any, more expense for materials and labour would be incurred in a factory using the milk of 500, than one using that of 300 cows. Small factories are not proportionally as profitable as large ones, though they may be made so, where the proprietor does the work of manufacturing the cheese and can keep a large number of cows of his own, and buy the milk of his neighbours at a reasonable price. Calculating that ten pounds of good new milk will yield one pound of cheese, which is about the general average, and the value of the cheese at twelve and a half cents per pound, new milk would be worth about one cent per pound delivered at the factory. At this price the farmer would make more by selling his milk than by keeping it at home for the sake of the butter that could be made, unless, indeed, he has cows that give an average of over eight pounds of butter each per week, for the whole season.

In making calculations for the purchase of milk to supply a factory, it must be made a certainty that the milk of an adequate number of cows can be secured for the entire season, without fail, and each one who agrees to supply milk must stipulate to furnish all he obtains from the number of cows he agrees to supply the milk of, from the beginning to the end of the season of cheese-making. Usually one or two cows are reserved by each patron to yield a supply of milk and butter for his own family; but while he cannot have the privilege of withdrawing any cows, the factory man is always willing to take on more, as the patron has them come in, or as new patrons wish to join. The annual report of the Canadian Dairymen's Association, which can be had from Mr. James Noxon, Ingersoll, by any one joining the Association and paying their annual fee, $1, will give a large amount of interesting information on the subject of cheese factories and cheese-making.

Butter Factories.

In view of the now acknowledged fact that the establishment of cheese factories has done so much to improve the quality and increase the consumption, and therefore the value of cheese, it may be well to consider the necessity and feasibility of improving the quality of butter through the means of associated capital and effort, directed toward the establishment of butter factories. Notwithstanding all that has been said in the agricultural press on the subject of making butter, and the extra inducement offered in the way of higher prices for a really good article, there does not seem to be any general improvement in the quality of the butter sent to the leading markets of America. So far from improvement being the order of the day in this article, we are afraid that quite the reverse is the case.

To hard-working farmers' wives, a butter factory in their neighbourhood would prove a boon. It would be the means of lessening their labours greatly, while still enabling them to make money out of their dairies. It would also prove beneficial in another way, namely: encouraging the farmers to pay more attention to breeding stock, with a view to securing cows that would produce milk rich in quality as well as great in quantity—also in leading them to see the advantages of improving their pastures, with the object of keeping a larger number of cows on the farm. Under the present system of making butter at home, the ability of the farmer to profitably stock his farm is frequently curtailed by the impossibility of having more than the products of a very limited number of cows properly attended to.

The best plan to be followed in establishing a butter factory has yet to be discovered by the results of experiment, but in any case it would require much less outlay of capital for materials and costs of management than is necessary to start a cheese factory. There are two courses open to be followed. One is for several farmers in a neighbourhood to club together and start one, each supplying the milk from his cows, to be set and manipulated at the factory by a skilful dairymaid, the proceeds of the butter produced to be divided according to the quantity of milk supplied by each. This plan, however, would present many difficulties.

The other is for a person to start the factory with his own capital and buy the milk from the farmers, the price being regulated by the quality and richness of the milk, which can be ascertained by a lactometer. In this case the factory man would take the whole responsibility upon himself. He would require to visit occasionally each of those from whom he bought milk to see that the cows were healthy and properly managed, rejecting the milk of those who allowed their cows access to bad water and pastures overrun with weeds, or who treated them in a manner likely to make their milk prove injurious to the interests of the factory.

The milk could be brought to the factory either by the patrons or by the factory man, as might be most desirable. The churning of the cream, and even the working of the butter, could be done by machinery. A good supply of ice and a good spring of pure cold water would be necessary, and with all the details of management under the care of an experienced person, success in producing a first class article, that would command a ready sale at high prices, ought to become nearly a certainty.—*J. M. in Country Gentleman.*

Ohio Dairymen's Convention.

The Ohio Dairymen's Association held their sixth annual convention at Wellington, in Lorain County, on the 26th and 27th of January. Wellington is the centre of an extensive dairy district, and next to Little Falls is one of the largest cheese markets on this continent. During the last season, we are informed, nearly 4,000,000 pounds of cheese were shipped from this Ohio market. The Convention was of a very interesting and instructive character, the various addresses being carefully prepared and the discussions animated. The chair was occupied by Hon. A. Bartlet, the President of the Association, who opened the proceedings by an appropriate address. Among the subjects discussed was that of floating curds, the cause of which was generally admitted to be tainted milk, and the cheese manufactured from such was justly considered deleterious and unfit for food. Regarding the delivery of milk once or twice a day there were different opinions; but the meeting passed a resolution in favour of delivering once; and also recommending that the milk should be cooled before being carried to the factories.

The subject of pastures, and the bad effect of foul weeds, was ably treated in a paper by Mr. A. C. Benedict. The annual address was delivered by the Hon. G. Willams, of Oneida County.

The principal business of the second day's session, after the nomination of officers, was a discussion on Sunday cheese-making, in which papers on each side of the question were read, followed by a warm discussion, which resulted in the adoption of two rather conflicting resolutions—one endorsing the practice as a work of necessity, the other recommending that, whenever practicable, the milk should be kept over till Monday. Papers were read on milk fever and on rennets. A petition was adopted praying for the exemption of dairy products from tax on sales.

Poultry Yard.

Management of Peafowl.

My peahens lay twenty-five eggs each during the summer. Their eggs and the cock's feathers are worth more than their keep. I find them do best in a good sized aviary.—There is no comparison in the number of young birds that can be reared in one season by keeping them up and taking their eggs, rather than allowing them to hatch and rear their own. I prefer setting their eggs under a large fowl, as they can be more under control when so hatched. This is quite at variance with old notions, yet quite true. In every case they require a considerable quantity of green food. I give large quantities to my pigeons. I cut a cabbage with a long stalk to it, and put it into the neck of a bottle with water in it; this keeps it fresh. My pigeons eat it greedily, and are always in health. I am particular as to their food and water being clean, and often have the room whitewashed.—*London Field.*

A Spring Poultry Show.

To the Editor.

Sir,—I met a gentleman to-day at the poultry sale, who stated that he had been led to infer, from a late communication of mine in your paper, that the Ontario Poultry Association was on the decline, and that, consequently, several gentlemen, in his neighbourhood, were hanging back from joining.

It was certainly not my intention to give this unfavourable view of the *status* of the Society, which has lately added several new members to its list, and has revised all its rules and bye-laws. Several gentlemen connected with it have combined and sent orders to Europe for thirty dozen eggs, and the interest manifested at the sale to-day does not give the idea of any decadence in the poultry fancy.

The prize list and rules for the fifth exhibition are merely waiting to be put into the hands of the printers, and some $120 above the sum required for the prize list is on hand. The committee have the following questions under consideration as regards an exhibition:

The first is, as it cannot be held before the 18th of April, many say it is a bad time; and so it is, the hens being at maternal duties; but it is a period of comparative leisure, and perhaps the most convenient for visitors.

The second matter is a question of funds About $400 is required to be guaranteed for the coops, which are to be portable, and will thus constitute the show perpetual, as the money for prizes can always be had, and the coops, being portable, will always be on hand, and may even be hired out to other societies if required.

It therefore rests entirely with those fanciers who desire an exhibition to come liberally forward *without delay* with donations and subscriptions, and the difficulty will disappear.

F. C. HASSARD.

Toronto, Feb. 19, 1870.

Fowls vs. Worms.

M. Giot, the French entomologist, has lately found new employment for fowls. He says that French farmers have, during the past year, complained bitterly of the prevalence of worms which infest corn and other crops, the highest cultivated fields being the most infested. Fowls are known to be the most indefatigable worm destroyers, pursuing their prey with extraordinary instinct and tenacity. But fowls cannot conveniently be kept upon every field, nor are they wanted there at all seasons. Therefore M. Giot has invented a perambulating fowl-house, which is described as follows:

"He has large omnibuses, fitted up with perches above, the nest beneath. The fowls are shut in at night, and the vehicle is drawn to the required spot, and, the doors being opened in the morning, the fowls are let out to feed during the day in the fields. Knowing their habitation, they enter it at nightfall without hesitation, and roost and lay their eggs as well as in any other house."

Sale of Fancy Poultry.—An auction sale of poultry took place in this city on Saturday, February 19th. The birds were advertised as "imported," and drew together, in consequence, a large attendance of poultry fanciers, some coming from a considerable distance; but there was very little merit in the collection, the majority of the lots being of inferior quality, and in poor condition. The prices realized were not such as to encourage the repetition of the experiment, ranging from $1 to $2.70 each for poultry, and from 30 cts. to 70cts. for pigeons, of which there were only a few ordinary specimens. Good birds with such an assemblage of buyers would have fetched very different prices. The lots, with the exception of a few of cohchins belonging to Col. Hassard, were none of them, we are authorized to state, the property of any breeder of note connected with the Poultry Association.

Water for Fowls in Winter.—One great difficulty with poultry in the cold winter weather, is the constant freezing of the water left with the fowls, and consequent adhesion to the vessel containing it, thereby causing much trouble in continually throwing it out. There is, however, a very simple remedy by which almost all the trouble can be saved—namely, to thoroughly grease the inside of the pan or dish in which the water is placed, and in freezing no inconvenience from adhesion will be found, as in moving the pan or dish it will at once part with its cake of ice, and so entirely obviate the necessity of placing the vessel on a hot stove to thaw.

C. D.

Correspondence.

Steam Cultivation for Canada.

To the Editor.

Sir,—A few words on the steam plough, as it has been, is, and ought to be, may prove instructive to some and interesting to others of your readers.

There are three considerations that have brought about the successful employment of steam as a tractive power for the plough—they are, speed, cost and efficiency. How far have these points been gained? As regards speed, success has been reached so far that where good systems are used and the work is well laid out, an acre of strong soil can be turned up in ten hours to a depth of eight or ten inches for each horse-power expended. In the matter of expense little has been gained, as so much of the work hitherto done has been by way of experiment that only a few have realized a saving in the cost of the operation, though the superiority of the work has been a fruitful source of profit. In regard to efficiency, steam is eminently triumphant. The greatly increased aeration of the soil worked by steam is become so well known as to be admitted by all, friends or foes to its progress. Steam-worked land has no pan, and water seldom stands on the surface. The one great object of most steam-users is to keep all possible weight off the surface, except when the operation of breaking down clods is necessary, and the present systems of steam cultivation require no weight but that of the implement to traverse the land to be tilled. This is one main reason of the land lying so very light. Some even drill the seed by steam power, at a cost greater than that of the same operation when performed by horses, for the simple reason that horses' hoofs inflict irreparable damage to any land in a fit state to receive seed.

Thus, it will be seen that a successful steam cultivating apparatus must be able to work quickly, cheaply, and without compressing the land.

Now, as the chief part of such apparatus is the engine—other parts only being made to suit it—let us consider what kinds of engines have been and are used, and what are the kinds that will and must come into use before steam can be generally used on American farms.

One system that has found much favour in some parts is called the "round-about." To work this any kind of engine is used. The traction ropes pass round sheaves at the corners of the field, and on the headlands, drawing the plough to and fro, while the engine is stationary. The only advantage this system has is that it keeps the horses off the land. It requires much manual labour, and is as costly as horse work. This system is quite different to American ideas of efficient machinery, and few here would have patience to work it.

There is the "anchor" system, in which the engine is locomotive, travelling one headland, and its traction ropes pass round the sheave of an "anchor," moving parallel on the other headland, as the work progresses. This system, improved, on properly prepared farms, might pay well here, but as it requires some time to shift from field to field, will not do for general use.

The last system remaining to be noticed is the "double-engine," which is the most recently introduced, capable of doing most work, taking fewer "hands," and the one able to work most efficiently and under the greatest variety of circumstances. Two engines are used, moving parallel, one on each headland. These draw the plough backward and forward between them, in turn, and while one draws the other can have its machinery attended to, "firing up" done, and be moved forward for next furrows. Very little loss of power, economy and handiness are great recommendations to the use of this system, over others. The main drawbacks it has are: the headlands, necessarily left unbroken, to facilitate work; and the unwieldy character of the engines that have been used; also, the first cost prevents many from introducing them.

Steam ploughing heretofore has been too tedious, inapplicable to a majority of farms, or the machinery has been too cumbersome and expensive.

One system proposed, and largely believed in by many, especially in America, is that the engine should draw the plough after it horse fashion, or that the engine and plough should be combined. The first cost of the apparatus would be little, compared with some systems, but, supposing there were no other objections, the working expenses would not be nearly so low. The engine would consume a large proportion of its power in continually moving itself (besides the great additional wear and tear incurred) against which there is no set-off in the double engine system. Fuel and water expenses would be increased, and time would be lost in lubricating, receiving the wood and water, and in turning at the ends. But the main reason that such a system could not succeed is, that almost as much harm would be done by the engine moving over the land to be worked as the operation would do good—the particles of earth would be so solidified that several operations would hardly eradicate the effects on the top soil; yet the greatest damage would be below. The drains, at a depth of thirty-two inches or more, are generally blocked wherever an ordinary ploughing engine has passed over, if the land is at all damp at the time; and the continuous use of heavy engines would soon produce an impervious pan. This system has been tried over and over again, and has hitherto failed, not because suitable engines have not been tried, for many such have been produced, at immense expense, but from the above practical difficulties. Some may say, try a light steel boiler and one of Hamilton's small rotary engines. Such would be an improvement, but the first objection urged against the system would hold good. That an engine might be constructed to work on this system at an equal cost to similar work by horses, is certain, but where would the gain be? Horse flesh is the cheaper apparatus.

The system that will probably succeed eventually in America—for steam must come—will be either the double engine, improved, or the twin engine, perfected, system (in which both engines apply power simultaneously and continuously to the same implement).

Many improvements have recently been made in steam engines, and are about being introduced, which will enable engines to to be built much cheaper, to work, on the two systems last named, with greater success than has been yet reached.

The great defect in all ploughing engines hitherto constructed has been that no dome could be placed on the boiler, for want of room. This Hamilton's engine wholly remedies, and also simplifies and lessens the necessary gear. Engines combining late inventions could perform all ordinary farming operations much cheaper than can be done by horses; they would be so simple that any one could work them; handy enough to turn into any common gateway; be equally available for traction purposes on ordinary roads, threshing, &c.; could pass readily over soft wet ground; and the sum for which they might be manufactured would be less than that of those at present employed.

There is now no real obstacle to the general use of steam farming machinery, and the capital taken to work any ordinary business would purchase and run such as described.

R.

Economy of Time.

To the Editor.

Sir,—It seems strange that men that have lived to the age of sixty, fifty, or even forty years, will lay out their farms and buildings to such disadvantage. It seems that they have no new ideas of their own, but do as their fathers and grandfathers did.

A person in travelling over the country sees many farms, and all differently laid out; and it really looks as though the owners laid them out so as to make plenty of work for the women and hired men.

Men who move on new farms in the woods are to be excused; for the first thing needed is a house, and that is built near the road, on a rise of ground, (if there is any to be found). But it is not necessary to have the barn sixty or eighty rods from the house, for fear of taking fire from the stovepipe, and the stable as far from the house in another direction.

If people would think a little, and talk the matter over with their neighbours and ask their advice, they would hit upon some new ideas by which they could have things more convenient, and save hundreds of miles of travel, which is quite a consideration, especially when it is muddy, or the snow deep. I know a farmer who has three different places, each forty rods or more apart, where he has to go to feed. One is near the house, another forty rods from the first, and the third forty from the second in another direction. Now, this farmer is always behindhand with his work, and always in a hurry; he keeps one or two hired men. He has but one gate in use on the two hundred acre farm; he had some new ones made about three years ago, but he keeps them in the old house out of the weather. I think it must be a pleasure to him to take down and put up the bars.

I know another farmer whose well is about fourteen rods from the house, and his cattle had to go about half a mile for water or go without.

I know of three men living on a rented farm, and they carry all the water for the house use from a neighbour's about forty-five rods distant. They have been living there over two years, and they must go on an average about once each day. Now, let us see what it amounts to; say, one man forty-five rods and return makes ninety rods; three times ninety (for there are three families) makes two hundred and seventy rods, multiplied by three hundred and sixty-five makes about three hundred and eight miles per year. Just calculate how long it will take a man to walk three hundred and eight miles: even at the rate of thirty miles per day it takes over ten days.

Let us set against this the cost of digging and curbing a well, say, for digging, two men, one day..... $2 00.
Lumber, say 200 feet, (that is plenty). 2 00.
Nails..... 05
Other work..... 1 00.

Whole amount..... $5 05.

Perhaps this is too low an estimate. The labour of two men might be required, one to dig and one to haul away the dirt, for more than one day; still, the expense is seldom considerable.

By this you can see how some men spend a good part of their time, and yet they cannot see why they do not get along better. There might be many instances of the kind enumerated, but the above is enough to set those who have any brains to thinking.

L. R.

The Engineer on the Farm.

To the Editor.

Sir,—Steam and mechanical expedients are rapidly being brought into subservience to the ends of the husbandman. On this side of the Atlantic we use machinery much more largely for some agricultural purposes than it is used in Britain, whilst for other farming processes mechanism is much more employed by the old country farmer than by our own. This is natural, and almost a necessity, considering the needs and position of America and Britain. There are many ways, however, in which we might, with advantage,

use English agricultural devices. For instance, the English seed drills.

Steam is beginning to be used to a much larger extent in British farming than ever, not only for threshing, etc., but in many parts the plough is quite successfully worked by this means, and on one farm we know of, not only ploughing, but all the tilling is by steam, cultivating, harrowing and drilling the seed included. It may not, perhaps, be practicable to bring the steam threshing machine or steam plough into common use in Canada just yet, but there is a way steam could be made greatly to benefit us,—by applying its unlimited powers in lieu of the axe, in clearing our interminable forests. This seems a new proposition, and presents many difficulties; but in an engineering point of view it is quite simple, easy of accomplishment, and an ordinary operation, Machinery, peculiarly adapted to the purpose is largely in use in England in other ways; the capital to purchase this is the only real difficulty.

"How would you go to work?" perhaps some one asks. Simply to pull down the trees, or pull away the stumps.

Our old settlers, who have spent many a weary day in chopping out a clearing, would no doubt be inclined to ridicule the idea, at first. Let them, however, think of the many giants they have seen lying prostrate, uprooted, from the simple force of the wind. Considering what leverage the trunk of the tree offers the engineer as a means to extract the roots from the ground, it will be perceived that he would simply have to attach a steel rope or chain to such part of the tree as he deemed most advisable, and haul it down and away to any desired place.

I have no doubt but that this will sometime be the way the clearing of the forest will be performed, and the sooner the better for many. Machinery for this purpose could also be employed for sawing, grinding, ploughing, or any other purpose of the farm. The expense incurred in working would simply be interest on capital, and the time of from two to six men; giving a large return from receipts for work accomplished. Other ways of using engineering knowledge on the farm suggest themselves; but, for the present, I will only throw out the above suggestion as one that appears to me to be feasible and profitable.

R.

Broom Corn.

To the Editor.

SIR,—Will you be kind enough to inform me, through the columns of your journal, if it would be possible to grow broom corn in the vicinity of Hamilton. I presume we could raise plenty of stocks, but could we successfully grow it so as to insure its perfect heading? I have been informed that the broom itself does not attain a sufficient length for manufacturing purposes, and if this is the case, of course it is useless to raise it. I would also like to know what soil is best adapted for growing it, whether the ground should be very rich, and also what yield could we expect per acre.

JOHN W. SMOAK,
Hamilton, Ont.

REPLY.—To grow broom corn successfully, the same climate, soil, and general culture are required that are suitable for the large Western corn, or for the Chinese sugar cane, which last is simply a variety of broom corn (*Sorghum*). As, however, it matures earlier than the large corn of the West, and should be cut for economical purposes before the seed ripens, it is quite possible it may be adapted for some of the warmer portions of this Province, and at least the trial is worth making; though from the nature of our climate it would probably be an uncertain crop, and only answer in very favourable seasons. Rich loamy soils, not stiff clays, are most suitable. About 500 pounds to the acre is considered a fair average yield.

Advertisements for the "Canada Farmer" must be sent in to the office of publication early, and in order to secure their insertion in the forthcoming number, must in no case be later than the 7th of the month.

The Canada Farmer.

TORONTO, CANADA, MARCH 15, 1870.

Agriculture and Arts in 1869

The report for 1869 of the Commissioner of Agriculture and Arts, for the Province of Ontario, has been issued with commendable promptitude, and contains a large amount of interesting information. We noticed the report itself at the time it was laid before Parliament; but the statistics contained in the various appendices deserve more than a passing remark. These appendices are five in number, and may be referred to in their order.

The first contains an analysis of the reports of the various agricultural societies for 1868, so far as they have been sent into the Bureau. As a general thing, these reports have been made out in a very clear and satisfactory manner, and show, according to the Commissioner, a very great improvement on former years. Of course, some are not all which could be desired; but, upon the whole, they are very encouraging. There is an increasing desire and effort to improve the local exhibitions, by having fewer of them and amalgamating for this purpose two or more of the existing associations. No doubt this is a move in the right direction, especially when efforts are being put forth, along with the exhibition, to improve the breed of the various domestic animals by the Societies purchasing superior animals for stock purposes, and introducing for purpose of trial, new and improved seeds. From such a mass of reports, it might seem invidious to select one or two of marked interest and excellence. Considerable activity and interest seem to be manifested in the District of Algoma, for instance, though one of the newest and least advanced districts of the Province; while the older districts, not contented with the degree of excellence already attained, are with praiseworthy earnestness seeking to make still further advances. The continued growth of wheat for successive years, on the same land, is being dropped by an ever increasing number, injurious as it is in the long run to all concerned, though for the first few years apparently profitable. The report from South Brant well says:—"It cannot be sufficiently published for the benefit of all the great gain which may be made by adopting a judicious system of rotation, the growing of green crops, roots and vegetables." With good farming, Ontario may be made a garden. What bad farming can accomplish is testified by thousands of "lean and hungry" acres almost everywhere, which, once rich, now scarcely afford a wretched subsistence to their unskilled and thriftless proprietors. Sometimes people are foolish enough to try to excuse their bad farming by saying that they can't afford to do better. If good farming won't pay, bad farming need not be tried.

The conclusion of this report from South Brant is worth giving; and its sentiments ought to be impressed upon the minds of all who have the best interests of Canada at heart.

"We therefore say, educate your sons and daughters; never cease, in season and out of season, to impress upon their minds, the nobility, dignity, yes! the blessedness of labour; the Godlike virtue of truth; the necessity of honesty and liberality in their dealings with all men. Purchase books, old and new, for the use of your families; spend less in adorning the person, more upon the mind; more usefulness, less worthless display. Place the minds of your sons and daughters, by means of books, in direct communication with the best minds that have lived during the last three thousand years, and thus endeavour to make the rising generation, giants, mighty men of renown, who will go forth into the world to make their mark as artizans, mechanics, chemists and farmers; men who will be eager to aid industrial progress of every kind, to help forward a new social organization, having for its object the banishment of poverty and distress from the face of the land, together with other much needed reforms; then, after a lifetime spent in usefulness and self-abnegation, in doing good and helping their weary, toil-worn fellowmen, "they will leave behind them honourable names to be remembered with those of the benefactors of humanity."

The second appendix has reference to Mechanics Institutes.

According to the new law passed by the Local Legislature a dollar a year is given by Government for every dollar raised by Mechanics' Institutes for evening instruction, up to a maximum of two hundred dollars. Thirteen Institutes availed themselves of this provision in 1868, though only three of them received the maximum. Among these thirteen $1,610 were distributed. Last year seventeen Institutes received grants, and had $2,356 07 divided among them. Of course there is a large number of other Institutes which have received no grants. Some of these seem to be in a very flourishing condition; others are rather languishing.

The Report of the Fruit-Growers Association will well repay a careful perusal, abounding as it does in useful suggestions and interesting facts.

The crop returns given in appendix 4th will be very useful to compare with those of coming years. While there have been partial failures in certain localities, in general the crop of '69 is much above the average. In many places the yield is given as double that of the previous year, while one-third, or even one-half more is not uncommon. The average yield of Fall Wheat in 1868 was 20½ bushels per acre; in 1869 21¾. Spring wheat in the former year averaged 14 bushels; in the latter, 19¼. In 1868 oats averaged 24 bushels; last year, 30. Barley in 1868, 22½; in 1869, 30½. The highest yield of fall wheat in 1869 was 28 bushels per acre. Of Spring, one county gives 30 bushels per acre, but generally from 20 to 25. Oats in some cases reached a yield as high as 50 bushels per acre; and 35 and 40 were quite common.

We hope the reports of succeeding years will be much fuller, and give even a more satisfactory view of the agricultural condition and advancement of our fair and fertile Province. Much has already been done, but a great deal more remains to be accomplished; and we sincerely trust that all will do their best in a work which has so intimate and influential a bearing upon all the best interests of every class of the community.

No country can flourish where agriculture decays, and by way of eminence this is true of Ontario. Whatever facilities we have for developing manufactures—and these are great—such industries must always occupy a secondary place compared with utilizing to the utmost the resources of our fertile soil.

Agricultural Societies.

So thoroughly has the spirit of improvement now taken hold of the farmers that there is scarcely a county or township in Canada but has its Agricultural Society, and judging by the numerous reports of their doings the past year, as given in local papers, they seem to be steadily progressing in the work of increasing the interest taken by the rural population in the advancement of agricultural knowledge, and the improvement of the productive capabilities of the soil, as well as increasing the value of the stock raised on their farms.

Our limited space forbids giving any extensive notice of what is contained in the several reports that come to hand, as where all are striving to do their best, it would appear invidious to give prominence to a few of those that appear to have met with the greatest success in their efforts.

We were pleased to notice, in the cases where we attended agricultural fairs last autumn, that the matter of selecting competent judges, and judiciously arranging the prize list so as to give encouragement to individual effort in introducing improved stock, and better implements suitable to the wants of the farmer, was beginning to be appreciated.

There is one point on which the officers of the societies do not yet seem to place sufficient stress; viz: punctuality on the part of the exhibitors in getting their articles on the ground and properly arranged in their places at an early hour, before the time comes for the general public to be admitted.

There is too much latitude allowed to exhibitors in this matter, and as in most cases the fairs are now extended to two days or more, it will be well to insist on a close observance of the rules of the society, and in time the people will become educated up to a knowledge of the value of punctuality. A thorough classification and proper arrangement of all the articles on exhibition, placing each class in a division by itself, and affixing thereto a proper label in letters that "one who runs may read," is a very great help towards bringing those who attend the fairs to observe and compare as well as see; for one of the great points aimed at in agricultural fairs should be to evoke a spirit of observation that will lead men on the right path towards improvement.

We might suggest that it would be well for the directors of one agricultural society to correspond with those of another, through their secretaries on the matter of appointing judges, and by this means an exchange could be made between them of men thoroughly competent. For instance the directors of a township society could either be appointed the judges at the fair of an adjoining township, or could give their brother directors of that township a list of those persons who in their opinion were likely to prove acceptable as judges, and at the same time had the advancement of the interests of agriculture sufficiently at heart to induce them to sacrifice a little of their time to so laudable an object. So with county societies. One object to be gained thereby would be the saving of expense, while insuring punctuality; for in cases that have come under our observation, judges have been appointed to attend at fairs, who resided at such distant points that they could not possibly attend except at great personal inconvenience and expense, which in all cases it is desirable to avoid imposing on men who take a real interest in agricultural progress.

Farm Labour.

It is much to be regretted that the old country system of employing labour on the farm all the year round, is not more generally adopted here. It would be better for both the farmer and the labourer he employs, if instead of our plan of hiring by the month, and then only during the season of actual tillage operations, and boarding at the house, men were hired by the year, and provided with a small cottage and garden. In this way not only would labour be cheaper, as a man will hire by the year at a much lower rate; with a certainty of employment, than if paid by the month for a short time, but it would bring a better and steadier class of labourers into the country.

What is needed is that farmers should give encouragement to married men with families to settle in the country. As things are now, the generality of farm labourers are either young men, sons of farmers, who would be in a better position if married and settled on farms of their own in the back country, or of that shiftless class of half mechanic, half la-

bourer, commonly found hanging about the skirts of towns and villages, always on the look-out for a job, that they often tire of and abandon when half done.

The right class of men are agricultural labourers—men that understand ditching, threshing, &c.; and such men can be got if they are given encouragement to come to the country.

A man of that kind, even with a family, can live and thrive on $120 a year, and board himself, as a garden patch of half an acre, with pasture for a cow, or milk given from the farm house, will give him all he needs except meat and flour, which the farmer can supply him with at market prices.

Under this plan there would always be a man on the place to do the chores when the farmer himself was busy. He could be employed in winter in threshing oats or seed grain with a flail, cutting up a supply of firewood for summer, and even digging ditches for underdrains, if proper preparation had been made the previous fall for carrying on that work. The comfort and profit of having such a man ready at all times for any kind of work needs only to be experienced to be appreciated.

Emigration to Canada.

We are glad to notice on every side evidences that Canada is attracting increasing attention in Britain as a very desirable country for the industrious and struggling poor to emigrate to. As the result of this, much more correct ideas are being diffused in regard to what sort of a place this Canada is. Even the Thunderer of Printing House Square condescends to give the Dominion a patronizing pat upon the shoulder and the information about the position and capabilities of the country are not at all so absurdly apocryphal as it used to be even a short time ago.

The Cottager and Artizan, for instance, a very nicely printed and illustrated paper which circulates largely among the working classes, has begun in its January number a series of papers on Emigration, for the purpose of advising who should emigrate, and to what countries they should go. It gives, in the first place, some account of the Dominion, and comes passably near the size of our promising country. The dimension of the whole Dominion it puts down at about 15 thousand square miles less than that of old Canada alone. New Brunswick and Nova Scotia, however, contain 47,200 square miles; and if the 15,000 of deficit be added to these, this friendly informant tells the working classes of England that the Dominion has 62,200 square miles of territory less than it actually has, to say nothing of the North-West at all. Well, when the people of England get within 60,000 square miles of the true area of any British possession, a great step has been made. Things in that case will get into shape by and by. Though the writer of the papers in question is not quite accurate about the size of our country, he writes in a most friendly spirit, and gives good advice to those who ought to emigrate, as well as to those who ought not.

It cannot be too often stated that the idle, the dissipated, the pauperized, and the skilled workman who can do only one thing well, and will rather starve than turn his hand to anything else, ought not to come to Canada. A man who comes here must not be afraid of hard work—must make up his mind to encounter a good many disagreeable things, and must be resolved to meet such things like a man. He must be ready and willing to turn his hand to anything, and avoid strong drink as he would his greatest enemy. If he do that, and keep at it, with health and ordinary care, he will find Canada a very good place for him and his. Paupers, who expect to be helped at every turn, had better go elsewhere; or, better still, stay where they are. These papers by Dr. Ford, in the "Cottager," will do good. The more the plain, unquestionable facts about Canada are known in Britain so much the better for us and so much the better also for the struggling, industrious masses in the old land. Money is not to be had for the lifting, either in town or country throughout our Dominion; but there is wealth and a reward for "honest labour," as tens of thousands can gratefully testify.

Returning Emigrants

The recent arrival in Toronto of several families from Illinois, *en route* for Muskoka, affords additional evidence of the difficulty of making a living in some parts of the neighbouring Republic. Some States which are possessed of immense quantities of prairie land and other apparent advantages, are in reality less adapted to farming than other places not apparently so highly favoured. Illinois, for instance, has land enough and to spare for all the population she can gather for many years; yet her principal city teems with men out of employment, amongst whom are many who have come in from the country. There is much to militate against their success as agriculturists. It is not the want of land, and as the complaint is made by many, there must be some cause for which the men themselves are not to blame.

The prairie lands farther North-West offer more inviting fields for farming operations than Illinois. Minnesota is far superior to the more southern States; its growth of wheat is enormous, and its climate fine.

Our own North-West Territory, by which is meant those districts watered by the Red River, Assiniboine, Saskatchewan, and neighbouring streams possesses greater advantages than any State to the south of it. The prairie land is of the most fertile kind, there is more wood at the hand of the settler, and there is a plentiful supply of coal. The country farthest west possesses a milder climate than Minnesota, and is equally wealthy.

Accounts of the resources of that portion of British North America, known as the "Fertile Belt," agree in describing the country as the finest on this Continent; and there is no doubt that when the road is open to Winnipeg a stream of immigration will set in which has never been paralleled in British America. The isolation under which the North-West has slowly thrived will be exchanged for easy and constant communication with the older Provinces. The coming spring will see numbers of Canadians settling in the newly-opened Territory, and the construction of a railway through the Settlement is not far distant.

The attractions which the North-West offers will not fail to draw many besides Canadians. The efforts which are being made in England to provide means for sending Englishmen to the Colonies will result in numbers finding their way to Winnipeg. Canada's popularity in England is greater than that possessed by any other Colony; and were our emigration interests in Great Britain attended to properly and regularly, there is little doubt that we should receive by far the greater portion of those who are leaving their homes. The prospects which the North-West offers to men of all ranks, but particularly to those who can command a little capital, are so great that, if properly understood in England, the opportunity would be seized by many who have now no thoughts of coming. The man who in England farms a small patch of fifty acres, and who is compelled to use several hundred pounds in capital, would find his means and his knowledge far better employed on this side of the Atlantic. He does not know that, however; he has only a misty idea of which is Canada and which the United States, and he would not know where to come to, if he made up his mind to come at all, without proper information being given him. There are numbers of men of another class who have just enough money to be useless in England, to whom the North-West offers a golden opportunity; and there is no lack of men, who, having one or two hundred pounds, which brings them in perhaps three or four per cent., would gladly remove to a country where their capital would, in a few years, be of a very different magnitude.

Notes on the Weather.

The winter so far has been characterized by very moderate weather, though the latter part of February has been colder than any other time of the season. Snow has been abundant throughout most of the country, there being excellent sleighing even at Toronto during a good part of the month.

Stock of all kinds seem to have wintered well, and a great demand exists for good animals, especially milch cows and heifers, which bring exceedingly remunerative rates, where well bred and in good condition.

The range of temperature for February has been considerable, though the figures indicate a slightly lower degree on the average than last year. The highest temperature was 40° 6 on the 17th; the lowest, -6° 6 on the 21st. The mean temperature of the month has been 21° 7, being 1° 3 below the general average, and 3° 3 below that of February, 1869. The amount of rain-fall has been 0.520 inches; of snow, 20.2 inches. There has been little clear weather, 17 days having been entirely overcast, and 11 partially so. The prevailing winds have been westerly, with considerable variation to the north-west and east.

Simmers' Cultivators' Guide for 1870.—We have received a copy of Mr. J. A. Simmer's annual catalogue of field, vegetable, and flower seeds for the current year. Besides furnishing a complete and well arranged list of seeds, comprising all the latest novelties, the pamphlet contains, as its name implies, brief practical directions for the sowing and culture of the various garden plants. Mr. Simmers' well established reputation as a careful and reliable seedsman, his moderate prices, and the excellence of his stock of seeds, to which we have pleasure in bearing testimony from personal experience, give him a claim to a full share of patronage both among farmers and amateur gardeners. He has recently added to his facilities for business a garden for raising seeds and flowers, which is situated a short distance from the northern limits of the city. A copy of the "Cultivators' guide will be sent to any one remitting in a pre-paid letter a three-cent stamp for return postage.

Miller's Tick Destroyer.—We have pleasure in directing attention to Mr. Miller's advertisement in refereace to his valuable remedy for sheep ticks and other vermin that often prove so troublesome to the infested animals, impairing their health, and deteriorating the quality, as well as diminishing the quantity, of their wool. This preparation has now been before the public for several years, and has steadily gained in reputation as it has been more extensively tried. It has found its way, not only over all parts of Canada and the United States, but into Great Britain, where, to judge by the testimony of eminent flock-masters, it is held in high esteem. We believe it to be a thoroughly efficacious, and with ordinary precaution a perfectly safe application, and have no hesitation in commending it to the attention of Canadian farmers.

Horticulture.

EDITOR—D. W. BEADLE,

CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Fruit-growers' Association of Ontario

The regular winter meeting of this association was held on the 3rd of February, 1870, at the Court House, in the city of Hamilton. There was a very good attendance of members, and considerable interest manifested in the subjects discussed.

The meeting was called to order by the President, Rev. R. Boraet, and after reading of minutes,

Mr. Rykert called attention to the Fruit Prize List of the Agricultural and Arts Association, and suggested the desirability of having it extended and better classified.

Mr. Mills stated that he had no doubt the Agricultural Association would alter the prize list to meet the views of this Society, as they had made many changes last year upon his recommendation.

This subject was left in the hands of the President, and the meeting proceeded to the discussion of the first subject,

THE PEAR BLIGHT.

Mr. A. P. Farrell, of Cayuga, had tried iron filings, applied to the roots by mixing them with the soil, and at the same time carefully and thoroughly cut out the blighted and affected portions of the trees, and they had grown very thriftily since.

Mr. Bennett, of Brantford, had tried the same application and treatment, and thought he had found it to be very beneficial until this year, when very many of his trees blighted, and there seemed to be nothing left but to cut off the diseased portions as often as they appeared.

Mr. Arnold, of Paris, was entirely at a loss what to say or do concerning this disease. It had baffled all his skill, and set at nought all his attempts to devise a remedy, and he had none to offer.

Mr. Morse, of Smithville, had but little experience with the pear blight. (Fortunate man.) It was only when trees made a very luxuriant growth that he had found them liable to be killed back, probably by the effects of the winter. He mentioned an experiment that had been tried by some gentleman, who gave some of his trees very high cultivation, and some very little care. Those that were highly cultivated were all of them more or less affected, while those with but little cultivation were all good and sound. He was inclined to believe that the trees suffered most from sudden changes from heat to cold in the early part of the growing season. He thought that the application of ashes, and perhaps, of a little lime, was of the greatest possible benefit in the culture of the pear, both as regards the blight and the general growth and vigour of the tree.

Mr. W. H. Mills, of Hamilton, thought there were three causes of blight in the pear tree: First, frozen sap blight; second, summer blight, arising from different causes, and third, a blight caused by fungoid growth. He thought that if evaporation is rapid during the growing season, and the tree is not well supplied, and this condition is followed by a few days of warm rain with a close atmosphere, then the tree becomes gorged with sap, the overstrained sap-vessels burst, turn black, and are in a fit state to be attacked by some fungus, which finds in this condition of things just that which is most conducive to its own rapid growth.

Judge Logie, of Hamilton, had applied coal ashes, mixed with wood ashes and a little well rotted manure, and has neve known the trees thus treated to become blighted. He thought the soil had much to do with the blight, and that in soils in which lime is deficient, the application of a moderate quantity was highly beneficial.

Mr. A. M. Smith, of Lockport, N.Y., said he had much faith in the use of lime and wood ashes. He also washes his trees with soap and lime-water, and does not cultivate very highly.

Mr. Holton had watched with much interest the progress of a pear orchard belonging to Mr. Lewis Springer, who had made an incision into the bark of the trees, running from the limbs down the trunk to the ground. This cut was made just through the outer bark, but not down to the wood, in the month of June. Thus far, this orchard had escaped the blight. He has also been seriously troubled with a blight in his crab apple trees, especially in the Montreal Beauty, which is not a very rapid grower, and thought the disease to be the same as the pear blight. It usually began in the tops of the trees, and worked downward.

Mr. Arnold asked if any one had seen a pear tree blighted, the cultivation of which had been wholly neglected.

Mr. Rykert replied that he knew of an orchard of dwarf pear trees in the vicinity of St. Catharines which had been totally neglected, was allowed to grow up with weeds and grass that nearly hid the trees from sight, and a large part of that orchard had been killed with blight.

Mr. Mills said he had for several years past been in the habit of making longitudinal incisions in the bark of his pear trees, in the manner mentioned by Mr. Holton, and had not found any of his trees to be affected with the blight since he had tried this plan.

Mr. Saunders, of London, stated that he had an orchard of pear trees in a light, hungry soil, and one of those trees was killed by the blight. That one had made the least growth of any.

Mr. Bennett remarked that the frozen sap blight which appeared in trees making too rapid growth was easily understood, but the other blight, which he thinks is quite distinct, known as the fire-blight, is a puzzle.

Dr. L. Cross, of St. Catharines, has noticed a form of blight which is indicated by the bark turning black in spots, and that the trees which are attacked in this way *always* die

Mr. Freed, of Hamilton, thought that the blight was more prevalent after a severe winter. He was disposed to believe that the severe frost was the first cause of the blight, the hot summer finishing the evil then commenced.

Mr. Beadle thought there was only one disease, which was varied in its manifestations, and that it was well known by the name of fire blight. He had seen this disease in seedling pear trees that had never passed through a winter, and known them killed entirely by it. He had known charcoal used, and for a time it seemed to have the effect of preventing the blight, none having been seen among the trees so treated for some eight or ten years. But all at once the blight broke out again, and many of those trees were killed by it. He had seen trees growing in clay soils, in sandy soils, and in gravelly soils, alike suffer from this fire blight, had seen them blighted when growing wholly neglected in a fence corner, as well as when carefully cultivated in the garden. He trusted, however, that further and protracted experiments would be tried, in hopes of yet finding some remedy or preventive of this disease.

On motion of Mr. Morse, seconded by Mr. Rykert, leave was granted to introdnce at this meeting a memorial to Parliament, in effect praying that our Government would impose upon fruit trees coming into Canada from the United States the same duty that is imposed by that Government upon the same articles, when sent there from Canada.

The meeting then took a recess until two o'clock p.m.

AFTERNOON SESSION.

Messrs. Holton, George Leslie, jr., and C. Arnold, were appointed a committee to examine and report upon the seedling apples and other fruits on the table.

There was a very fine collection of many varieties of winter apples and late keeping pears on the table, brought together by the members from different parts of the country.

The reports of the Society for the year 1869 were distributed to the members present. Members entitled to them who were not present will receive them by mail.

Mr. Morse introduced the memorial to the Legislature, stating that he was a free trade man, and felt that if our Government would impose upon the products of the United States the same duties that they impose upon our products, they would soon see the folly of attempting to drive us into annexation by the course they were now pursuing, and would be very glad to return to a more liberal policy.

Considerable diversity of opinion was expressed, and an animated discussion was maintained for some time, which we omit, as throwing no light on the cultivation of fruits.

It was at length resolved, by a vote of seventeen to ten, to send the memorial introduced by Mr. Morse to the several branches of the Legislature, and that the President and Secretary sign the same.

Nothing new was elicited on the subject of winter pears. The President spoke very highly of the Beurre Millet, had found it a very fine pear, and thought it well worthy of trial.

The Beurre Millet, of Angers, is a very vigorous and productive tree. The fruit is of medium size, having a greenish skin, covered with russet, and thickly sprinkled with minute russet dots. The flesh is whitish, somewhat buttery, juicy, melting, with a brisk vinous flavour. In use in December and January.

SUMMER PINCHING

was the next subject discussed.

The President stated that for eight or nine years he had pursued the system of pinching in the growing shoots. This should be done in dry weather, and on no account is it to be done in wet weather. The effect of this summer pinching was to increase the quantity of fruit, and induce the trees to fruit earlier. This pinching should be done in the end of June or beginning of July.

Mr. Townsend, of Hamilton, said he had a large number of pear trees under his care, always summer pinched in the manner described by the President, and was fully satisfied of its beneficial effects.

Mr. Saunders agreed in the main with the President, but had found that you could not always depend upon obtaining greater fruitfulness by summer pinching. He had a plum tree which he had summer pinched most thoroughly, in the hope of making it fruit, but it had spent its whole force in making wood, in despite of all his pinching.

Mr. Beadle was of opinion that the tendency of summer pinching was to arrest the wood growth and induce the tree to form fruit spurs. There may be occasional exceptions, owing to some peculiar counteracting cause, but in the main the effect may be relied upon.

THINNING OUT THE FRUIT.

Mr. Morden, of Halloway, county of Hastings, thought there could be no question but that the thinning out of the fruit was very beneficial both to the development and perfection of the fruit that was allowed to remain, and to the tree.

Mr. Mills had had considerable experience in thinning out the fruit, and found it to be exceedingly beneficial. He instanced a dwarf apple tree, of the variety known as the Alexander. He commenced to thin this out when the fruit was quite young, about the size of a walnut, and removed about half of the fruit. Later in the season he became satisfied that he had left too much fruit on this tree, and he thinned it out again, and finally left about half a bushel on the tree, and as the result of this thinning, every apple was perfect, they were of uniform size, and perfect beauties. He takes off the smaller and imperfect fruit, and is confident that the value of the crop thus obtained is decidedly greater than if the entire crop set were allowed to remain on the tree.

Mr. Morse and Mr. Freed confirmed what had been said, believing that both size and quality of the fruit were improved by proper thinning out, and that the price realized from the fruit of an orchard would be greater than if the whole were allowed to grow.

The President stated that if only the proper quantity of fruit were allowed to grow, which of course varied with the size and vigour of the tree, plenty of fruit spurs would be formed by the tree for the production of fruit the following year; but if all the fruit was allowed to grow and ripen, the tree would not form fruit buds for the next year, so that there would be always fruit only every other year. By judicious thinning a crop of fruit is secured every year.

Mr. Beadle believed from actual experience that it would pay to hire a good hand at a dollar and a quarter per day to go carefully through the orchard, and thin out the fruit from those trees that had set too much.

KEEPING FRUIT.

Mr. Mills said that while in attendance upon the American Pomological Society at Philadelphia, he saw fruit that had been kept for a year in a fruit house, without change or deterioration, and thought it was very desirable to adopt such a plan. He kept his own fruit in an ordinary cellar lined with water-lime.

Mr. Saunders said that it would be very easy to try the experiment of keeping fruit in an atmosphere of carbonic acid gas, which prevents the action of the air upon the fruit, and suggested that members make the trial.

Mr. Bauer, of Hamilton, said that he had kept currants and grapes in cans charged with sulphurous acid gas, if put in a cool place. He had tried to keep them in this way in a warm place and had failed. This gas had no effect on the flavour. He had kept cherries nicely until Christmas, and should experiment further.

Mr. Saunders had tried sulphate of soda, but found it to give a strong nutty flavour, which was not satisfactory. Carbonic acid gas, on account of its great specific gravity, was very easily tried. Sulphurous acid gas escaped easily.

Dr. Cross said that sulphurous acid gas absorbed oxygen from the fruit, and kept it in a fresh state without fermentation or decay, while carbonic acid gas only excludes the oxygen of the atmosphere.

The President said he would recommend to pack fruit in nice, clean, washed sand. It would keep plums and cherries for a considerable time beyond their natural period of ripening. A cold room of even temperature would keep fruit much longer than one where the temperature was constantly varying. Pears placed in a close drawer kept in perfectly good condition for a month or six weeks longer than those exposed in the open air of the room. Pears tied up in paper bags keep much longer and ripen better than if exposed to the air.

Mr. Mills said he put some Belle Lucrative pears in clean washed sand. They kept for three weeks after the others were ripe, and were then not ripe, but on being taken upstairs ripened in a few days, but lost their flavour.

Mr. Hatt, of Dundas, headed up tightly in a barrel some snow apples, and kept them in a cold cellar, almost at freezing point, and they turned out exceedingly well.

SHIPPING FRUIT.

Mr. Ball, of Niagara, said that any clean-looking, well flavoured apple, can be shipped if properly packed. The chief point was the packing. He had shipped with sweating and without. Only first class apples should be used. Each basketful of apples, when put into the barrel, should be carefully shaken down, and the barrels filled nearly even with the top, the heads put on and pressed to their places. He had shipped several varieties—Russets, Ribston Pippins, etc. Apples required to be of good flavour and colour to sell well in Europe, and to be of uniform size, never more than two sizes in the same barrel. He did not think it advisable to press more than an inch and a half.

Mr. Mills described Mr. Springer's mode of packing apples. He does not shake them down as he puts them into the barrel, but after he has filled the barrel he puts on a cone of inferior apples to receive the crushing and then presses them down. Mr. Springer is very successful.

Mr. Keating thought that when the apples had to be transported over rough roads it was necessary to press more than when they need to be taken only a short distance in waggons or over smooth roads. He is in the habit of pressing the fruit down about three inches. Only the top ones are bruised.

Mr. Ball recommended that each shipper should put his name and mark on each barrel of apples he sends out. In this way the fruit and shipper become known and obtain a character in the market, and a price suited to its character. He also remarked that the Green Newtown Pippin sold for the highest price in England, and if it could be grown clean and free from spots on a favourable soil would be a profitable variety to ship to Europe.

Mr. Beadle said it was an utter waste of time and money to attempt to grow the Green Newtown Pippin for shipping from this country. It does not grow anywhere in this country in good order with certainty; it spots badly, and the tree fruits sparingly. It will not pay to grow it.

Mr. O. Hammond said he grew it in good order, but it did not bear so well as other varieties.

A resolution was passed recommending to all growers of fruit to mark their packages with their names, or some distinctive mark, by which they shall be known readily in the market.

Some discussion was had as to the time of holding the summer meeting, and the opinion of the meeting seemed to be that the best time would be when the Raspberries were ripe.

The subject of holding an autumn exhibition of fruit was laid over for consideration at the next meeting.

It was requested that the "Pruning of Fruit Trees" might be discussed at the summer meeting.

The committee appointed to examine the new seedling apples and other fruits on the table made their report, and the Association adjourned, to meet in London at the call of the President.

REPORT OF THE COMMITTEE ON SEEDLING APPLES AND OTHER FRUITS.

Seedling apples shown:—

Mr. James Best, Toronto, a pretty medium sized red cheeked apple, much resembling the Wagner, but inferior to it in flavour.

W. J. Marsh, Clarksburg, two seedling apples, both past their season, one resembling the Holland Pippin, but not equal to it; and one resembling the Rambo in appearance, but earlier, and not having, in our opinion, any distinctive merits.

W. E. Coleman, Lyn, two seedlings, one a small to medium apple, mild flavour, no merit; the other a very large, exceedingly showy, red apple, very much dotted, rather over ripe, evidently a late Fall apple, flavour mild sub-acid; worthy of trial.

Mr. Atwood, London, shows an apple of large size, supposed to be a seedling, in flavour and appearance very much resembling the Ribston Pippin; if proved to be a seedling of Canadian growth, we consider it to be the best that has been brought before our notice.

D. Hammond, Toronto township, one seedling apple, conical, with a red cheek, handsome, flesh almost white, rather coarse, mild flavour, core large; worthy of trial; also one called Andrews' Russet, a flattish medium sized russet, with a very red cheek, flesh white and of good flavour, specimens rather past their season.

E. R. Morden, two seedlings, small fruit, both past their season.

In apples of cultivated varieties, the display was very large and fine. Amongst the best, we note Swayze Pomme Grise, Cayuga Redstreak, King of Tompkins County, Melon, Swaar, Wagner, Northern Spy, and Lady Apple.

The display of pears, comprising some twenty kinds, was, for the season, very good, but many kinds were past their season, and nearly devoid of flavour. Well preserved specimens of Beurre Diel, Beurre d'Anjou, Vicar of Winkfield, Duchesse d'Angouleme, Winter Nelis and Verte Longue, were noted.

Mr. Cross, Oakville, exhibited samples of a strawberry basket that seemed to your committee to combine cheapness with durability to a very desirable degree.

CHAS. ARNOLD.
W. HOLTON.
GEO. LESLIE, Jr.

MEETING OF DIRECTORS.

A meeting of the Directors of the Fruit Growers' Association was held in the Court House, Hamilton, on the evening of the 3rd of February, 1870.

After the transaction of some routine business, the Secretary laid before the Board the three essays which he had received in competition for the prizes offered by the Association, and the Board appointed the President, Mr. Mills and Mr. Holton a committee to read the essays and award the prizes.

After hearing Mr. Freed's report on some crab apples—

A resolution was passed, thanking Mr. Cowherd, of Newport, for his exertions in producing superior varieties of the crab apple.

Mr. Rykert gave notice that he should, at the next meeting of the Directors, move a resolution that a Fruit Show be held by this Association in the fall.

The auditors' report was read, and the Secretary instructed to obtain sufficient vines of the Rumelan grape to give one to each member, and to each person who shall become a member before the first day of April, 1870, and who notifies the Secretary of his willingness to make the report thereon required by the Association.

Adjourned to the call of the President.

REPORT ON CRABS.

I examined and tasted the two varieties of fruit left at my place for my opinion, and beg to say:

No. 1, from Sarnia, is of very fair size for a crab, and although past its best, I would say it is a desirable fruit for a crab, particularly on account of its good keeping qualities.

No. 2, from Brantford (Mr. Cowherd's variety) is a very handsome fruit, of medium size, and very pleasant flavour, losing all the harsh and austere flavour of the crab, for the higher and finer flavour of our best apples approaching very near to the Scarlet Pearmain, which is a very good early dessert fruit.

To call it a crab, I think, surely, is a misnomer, and one that I think should engage the attention of the Society for a more suitable definition.

And here I would beg to remark that I know nothing of its parentage, but understood it to be a cross effected by Mr. Cowherd. This success of Mr. Cowherd in breaking down the harshness of the crab for the better qualities of the apple deserves encouragement, and a special vote of thanks by the Directors of the Association.

And I trust the Directors will offer good inducements for the best six or any other number of cross seedlings, raised from our best varieties of crabs and Russian varieties of apples, in the hope of raising hardy fruits of good size, and suitable for cooking and dessert. Fruit that can be raised in our far northern counties, of good second quality only, would confer a great boon on them, and one which I think the Association should keep in view.

JOHN FREED.

P.S.—My remarks are meant to apply to our northern counties for the fruit in question, thinking that in our more favoured locality more crabs are not required.

J. F.

Hamilton, December 29, 1869.

Meeting of Grape Growers

The grape growers of Western New York ave recently held their annual meeting. The writer was not able to attend, but from the reports, it seems to have been an occasion of much interest.

A long and animated discussion was held on the vexed question of pruning. Some advocated a partial pruning in the fall or winter, leaving a superabundance of wood, and then a second pruning in the spring or early summer, after the new growth has reached four or five feet in length. At this second pruning the new growth is not shortened in, but the entire shoot, leaves, fruit and all, cut away. The amount of pruning is regulated by the apparent strength of the vine.

This plan seems to us to entail an entirely unnecessary amount of labour, compelling the cultivator to go over his vineyard twice to accomplish what may as well be done at once. The reason given for only a partial winter or fall pruning was that the fruit sets better for leaving plenty of wood. This is true. But why does the fruit set better for leaving plenty of wood? It is because close fall or winter pruning causes the vine to suffer so severely in an intensely cold winter that the buds are injured, their vitality weakened, and, consequently, the fruit cannot set. The true and most economical method is not to prune in the fall or winter in this climate at all, but to prune between the 15th of March and the 15th of April in most seasons, and do all the pruning for the whole season at that time. Great objection has been made by some theorists to this spring pruning, on the ground that the vine weeps or bleeds at the cut, if made at this time, and that this weeping or bleeding was injurious to the vine. But this supposed injury is all a theory, After some years of trial of spring pruning, we have become perfectly satisfied that it is the very best season for pruning the vine, and that the weeping of the sap from the wounds is not in the least injurious. The plan pursued by the President (Mr. Pottle) is an approach to that of spring pruning. He prunes *lightly* in the fall or winter, and when it is apparent that the wood has wintered well, prunes again. If too much fruit sets, that he thins by removing the whole shoot on which it is. Some fruit may be removed from the shoots that are left, but the shoot is not shortened.

Several of the gentlemen present testified to the fact that the weeping or bleeding of the vine from spring pruning did not produce any bad effects, and many were fully persuaded that close planting and summer pruning were very injurious.

These are symptoms of progress, and in time the vine cultivators of America will learn the distance best suited to our varieties of the grape, that our vines will not bear fall or early winter pruning in this latitude, and that it is worse than a waste of time to cut away the leaves in summer.

An experiment was described by the President which ought to satisfy the most sceptical, and which fully proves that the grape does not need light upon the fruit in order to ripen. A gentleman enclosed a bunch while the fruit was of the size of buckshot, and quite green, so as to be in complete darkness, and it ripened and coloured perfectly. Ye advocates for summer defoliation, for cutting off the leaves so as to let the sunlight in upon the fruit, what excuse have you now for your harmful practice? Did you ever see a wild grape vine that had covered some tree top, and count its purple clusters hanging in the deepest shade, where no straggling sunbeam ever had leave to enter? And did you never notice, after your summer's leaf stripping, that the fruit you expose to the full glare of the sun never would colour perfectly, no, nor ripen perfectly either?

It was also brought out in these discussions that the base bud, and sometimes buds, will not produce fruit, and that observing vine-dressers are depending for fruit upon the third and fourth buds.

The President cautioned the members against deep ploughing in the vineyard, and advised the use of the cultivator in its stead. He stated that it was very important to the early ripening of the fruit that there should be plenty of surface roots; that deep-rooted vines ripen their fruit late, if at all.

On the subject of varieties there was great diversity of opinion. Some esteemed the Concord very highly for profit, One said he got more pounds per vine from the Delaware than the Concord. It would seem that the Iona cannot be depended on where the Catawba does not ripen, though it was admitted to be a little earlier. Several spoke very highly of the Eumelan, and no one had anything to say against it.

The Eumelan is the variety which the Fruit Growers' Association of Ontario is distributing to its members, on condition of receiving an annual report for five years of its behaviour, and in a few years more it will have been fully tested in this Province. Any one becoming a member before April 1st can have a vine if he wishes, by sending his name and member's fee to the Secretary, Mr. D. W. Beadle, St. Catharines.

Report of the Fruit Growers' Association for the year 1869.

This report, covering seventy-two pages, is full of information relating to the cultivation of fruit of different kinds in the Province of Ontario. It contains the Directors' report, the Treasurer's report for the year ending 21st September, 1869, the Officers for the present year, the address of the retiring President, W. H. Mills, Esq., delivered at the annual meeting, and full reports of the discussions on different varieties of fruits and their cultivation, which were had at the three general meetings held since the last report, one of which was held in St. Catherines, another in Hamilton, and the third in Galt. There is also a very complete synopsis of the returns made from all parts of the Province to the questions which were issued by the Commissioner of Agriculture at the request of the Fruit Growers' Association. This synopsis is divided into nine heads, thus bringing together as nearly as possible the returns from those parts of the Province which are most nearly alike in their climate. These divisions are designated as the Ottawa, St. Lawrence, Ontario East, Ontario West, Niagara, Erie, Huron, and Internal Divisions, and the District of Algoma.

It also contains an essay on the culture of the apple, an article on the cultivation of the pear, a paper on the plum tree, another on the culture of the currant, several short articles on the grape, one on the raspberry in 1867, and other fruit reports. It should be in the hands of every grower of fruits in Ontario, and will be sent to every one who now is a member of the Fruit Growers' Association, and to any person who sends his name to the Secretary, Mr. D. W. Beadle, St. Catharines, together with one dollar, requesting to be enrolled as a member of the Association.

Does Nature Economize her Forces?

To the Editor.

SIR,—I do think, after all, the really valuable lessons to be learnt in horticulture are those obtained by a close observation of the laws which govern vegetable development and by a strict adherence to them. There are too many who turn the index finger in a wrong direction, and then pursue the course with a tenacity worthy of a better cause.

I scarcely know why I take my pen to address you, unless it is through the hope that the few remarks I have to make may fall, by means of your widely circulated paper, under the notice of parties deeply interested in the production and dissemination of new cereals and plants in our Province. It seems to me the too great haste to make rich often compels us to pursue with the greatest tenacity an idea (false in itself) until it becomes so thoroughly grounded in the individual mind, that the oft-recurring thought seems like truth at last, and by such process becomes conscientiously foisted into public literature,

and thereafter such error requires to be worked out by a tedious public experience.

Many experiments recently made go to prove that not only roots, but fruits and grains, when grown at greater than usual distances apart, will yield larger crops and give greater returns than we had any previous conception of. It was shown to be the case in the yield of the grape vine, satisfactorily established, I think, by Mr. E. F. Underhill, in the November number of the *Journal of Horticulture*, page 257. It has also been shown to be the case both in potatoes and corn, and recently with wheat. Mr. Charles Arnold states that in the course of his experiments in hybridizing this cereal, he obtained from one kernel the astonishing number of 4,800 kernels; and in the subsequent year, 1869, the same variety yielded seventeen bushels two quarts and one pint, from seven pounds of seed—a result which, however wonderful, is altogether out of proportion with the enormous product of the first single berry. The contrast will be better understood by taking each bushel as weighing sixty pounds. We have then 1,026 lbs. as the yield from seven pounds. Therefore, as one grain is to 4,800, so is seven pounds to 1,026 pounds. This result must have been produced from the space of ground occupied by each grain. There was nothing to interfere with the first grain's productiveness; there was no struggle for life against similar competitors; but in the planting for 1869 it was quite otherwise. I cannot, therefore, avoid the conviction that in case the same variety be planted as in ordinary culture, a relative minimum of productiveness will be attained.

It is found that the wheat plant increases in proportion as its roots have room to develope, without interference with those of its neighbours. I am unable just now to lay my hands on an experiment which went to prove when room was given for the development of the root, that the wheat furnished ears containing over 120 grains, and by the same experiment it came to pass, that on every fully developed cereal plant there was always one ear superior to the rest, and, what was still most remarkable of all, each ear contained one grain which, when planted, was more productive than its fellows. Now, here the finger of nature's index points pretty clear. Select the best grain from the best ear, and quietly continue this for a few generations, and it will certainly bring you to a point of glorious perfection. If this becomes a recognized law, its application may be made in various products. And to attain the grandest results from the works sent forth from the Creator, nature often presents numerous and auxiliary ways to the same final purpose, and the mind which embraces the widest range of these auxiliary aids, wins the race.

To make a further analysis of Mr. Arnold's wheat experiment, it will be observed that one single kernel produced 4,800 kernels. To do this it must have equalled forty footstalks, or have been double-headed (which could scarcely have been the case), each footstalk containing one ear with the enormous number of one hundred and twenty kernels or grains each; this, it must be admitted, was a wonderful yield of the germ force. But such results may only be obtained, if ever, when planting takes place so that the roots may in no wise interfere and rob each other of that particular pabulum which goes to form the future germ or seed. I have frequently witnessed the ill effects of overcrowded planting in its non-productive results. It is thus clearly indicated that our trees and vines should be planted far apart. Avarice often defeats the very ends we wish to accomplish, and so we plant thick, hoping to double our profits.

I had the pleasure of witnessing a single Isabella grape vine this last season occupying a space of fifty feet long by eight feet high, with such an enormous load of fruit, that I can safely say that no other six vines of the same species could have been made to produce such a quantity on the same space. I am compelled to come to the conclusion that nature does economize her forces, when she can be made to produce from a single vine in a given space, as much as, or even more fruit than six vines occupying an equal space; or when a single grain may be made to produce more than forty grains improperly sown.

W. H. MILLS.

Hamilton, January 19, 1870.

On the Hybridizing of Pelargoniums.

The practice of impregnating flowers in order to produce varieties has of late been extensively adopted by gardeners and planters; but the proceeding is rarely, if ever philosophically investigated. Impregnation is effected by contact between the pollen and the stigma. The pollen is the farina or dust which escapes from the anthers of a flower when its valves burst open. The stigma is the point or termination of the pistil, which secretes a viscid juice. Whether the stigma be furnished with such juice or with a velvety pubescence, or whatever be the nature of its peculiarly appropriate surface, certain it is, that according to the most accurate observation, this organ is the only portion of a perfect vegetable which is not invested with a cuticle or epidermis.

The pollen emits a tube of extreme delicacy, which pierces the stigma, and still passing downwards into the ovary, enters the foramen of the ovule. So much has been written and published on cross-breeding, that it would be next to impossible to advance any theory respecting it, yet a few hints on the practical part of the work may not be out place, but might induce some to try their hand at this very interesting work, who are, perhaps, deterred from doing so, not knowing exactly how or when to apply the pollen, or other little matters connected therewith, so as to gain any satisfactory result.

One of the most important matters in connection with hybridizing, as in almost all undertakings, is to hit upon some kind of definite standard to be attained, so that the operator may have some decided object in view to look forward to and try to gain—in fact, have a decided reason for what he is about to do. By this course, the operator will be far more likely to arrive at some satisfactory result, than by merely trusting to the chance of getting something good just because he may happen to have crossed this variety with that. It is a common but delusive idea, that two varieties, being distinct will be sure, when crossed, to produce something different from either of the originals though it is just a chance if one of the seedlings so produced will be better than the parents, or even equal to them. Presuming, therefore, that the hybridizer is desirous of obtaining some particular cross with the object of arriving at the result he has set before him, and has fixed upon the varieties which he intends using for the purpose, the next important matter is to select good healthy plants as *parents* on both sides, as without healthy parents you can never expect seedlings from them to be strong and of good constitution; even though they be the most beautifully marked and distinct in flower, they can but be counted second rate. Having, then, made choice of good healthy plants of the varieties it is intended to hybridize, all the flowers that are expanded upon the plants that are to be used as seed-bearing parents should be taken off and the plants removed as far from others as possible, or if they can have the house to themselves so much the better; still, if care be used, this is not absolutely necessary. Watch the seed-bearing parents closely every day till the first flower opens, and immediately the petals are sufficiently expanded to admit of its being done without injury to the flowers, perform the first operation. The anthers, which are the male organs, appear as little knob-like portions, standing up prominently in the centre of the flower; these must be carefully taken out, without injury to the centre column or pistil. Always bear in mind that there are, in a perfect geranium flower, also two of the said anthers, lower down the centre of the flower than the rest, which must also be carefully taken out.

This can be done by a pair of sharp pointed scissors, or a penknife. Having satisfactorily accomplished this operation, watch carefully the progress of the female organ of the flower to its maturity, which in healthy flowers takes two or three days from the time the flower expands. Double flowers are an exception to this rule, for I find they take twice as long as the single to come to maturity. Last year I had sixteen seeds from Gloire de Nancy, and Triumph As I am writing this principally for amateurs, I ought, perhaps, to explain here that the female in a pelargonium is the stiff thread-like portion coming immediately from the centre of the flower, and surrounded by the filaments

bearing the anthers and having the appearance, in its earlier stage when the flower first opens, of one single thread-like projection, but which, as it advances to maturity, divides into five distinct parts, at the point, each division being the direct channel to a distinct seed-vessel at its base. Now, it is just this period of arriving at perfection in the female organ that is one of the most important matters in hybridizing. The best time, in my opinion, and what I generally follow in practice, is to apply the pollen as soon as possible after the division of the pistil into its distinct parts takes place, and before it has expanded to its full size. It is not only in its best state then for receiving the pollen, but there is less likelihood of its becoming impregnated with other than that intended. I may add that once impregnated with the one desired, all foreign pollen coming in contact therewith availeth nothing. In selecting flowers choice should be made of the first eight flowers that open on the truss, for as a rule they are the strongest and best. I make it a rule to cut all the others away. And in the choice of plants for a beginning, the following cannot be surpassed, viz: Zonals, White Pefection, Surpass, Beauty de Surennes, Eugene Mazardy, Mme. Warie, Julius Cæsar, Warrior, Criterion, King of Whites, Nosegay, Lady C. Grosvenor, Duchess of Sutherland, Indian Yellow, Dr Hogg, Le Grand, Pink, Stella and Violet Hill Nosegay. Let the beginner procure these few plants, for a start, and when purchasing be sure to get two year old plants.

JAMES J. CRAIG.

Toronto Horticultural Society.

This society held their annual meeting on the 8th of February. The report of the past year gave a very satisfactory account of the position of the Society and the state of its finances, a large portion of the debt having been cancelled, leaving at present only $800 due, which sum, it was hoped, would be raised over and above the expenses during the current year, so as to leave the Society entirely unburdened by any debt whatever. The Horticultural Gardens had undergone several improvements, among them the introduction of a rosery, which promises to thrive, and add a very attractive feature to the grounds.

The officers elected for the ensuing year were as follows:—

President—Hon. G. W. Allen; 1st Vice President—Philip Armstrong; 2nd do. F. W. Coate; Corresponding Secretary—Walter S. Lee; Recording Secretary—Henry Pellatt; Treasurer—James E. Ellis.

Directors—Rev. E. Baldwin, Thos. D. Harris, Geo. Leslie, Senr., J. Gibson, J. C. Gilmour, J. Forsyth, John Gray, Wm Ince, Geo. Leslie, Junr., J. H. Mason, F Sutherland Stayner, S. A. Summers, Jas. Fleming, John Paterson, Geo. Vair.

A resolution was carried affiliating the society with the Fruit Growers' Association.

Orchard Wind-breaks.

To the Editor.

SIR,—I noticed a communication in the December number of the CANADA FARMER, signed "Observer," asking for experience respecting planting trees for wind-breaks to shelter fruit orchards.

I write to give you my experience for the benefit of "Observer" or others that may be interested in planting trees to shelter their orchards.

Six years ago I prepared a strip of ground on the north-west side of my orchard, and set a row the full length of the orchard with the cuttings of Lombardy Poplars, setting them about fifteen inches apart. The result was they grew so rapidly that they astonished not only me but every one who saw them. I kept them well cleaned and cultivated, and cut about two-thirds of the centre shoots every year for four years, to make them branch out near the ground. It now makes a complete wind-break twenty feet high. During the summer and fall it is equal to evergreen trees, as the leaves hang on till the snow falls.

MY MISTAKES.

I made a mistake in setting the cuttings where they were to remain. Some few of the cuttings failed to grow; of course I filled up the spaces by planting more trees, but the others had possession of the soil, and they took the lead, so that I could not fill the breaches effectually. Those spots, though but few, are now an eyesore, and I would give almost any price to remedy them. Another mistake I made was in planting too close to my fruit trees. They should be at least twenty-five feet away; mine are only fifteen. If I were going to plant again I would plant trees two years old from the cutting, and cut them back well. There would not be the danger of their failing that there is when set without roots. The trees should be sorted and planted regularly according to size, beginning with the largest and finishing with the smallest, and those that grow the fastest should be cut back the most. Treated in this way they will make a good fence in six or seven years. Part of mine will now turn anything from a pig four months old to the wildest bull.

I am satisfied that the value of trees planted for shelter, not only to the orchard but to all exposed farms, can hardly be over-estimated. There are doubtless many kinds of trees that are adapted for this purpose. The advantages of the Lombardy Poplar are, first, they can be propagated so rapidly from the cutting that the trees cost less than almost any other kind. Secondly, they will thrive in almost any soil or situation. Thirdly, they will grow so close together that they almost touch each other, and still thrive. And lastly, there is perhaps no tree that will make wind-break in so short a time.

S. H. MITCHELL.

St. Mary's, Ont.

NOTE BY ED.—This communication is just what is wanted. The actual experience, for and against, of one person is worth a thousand-fold the best guessing of the wisest.

Toads vs Bugs.

We make the following extracts from some passages in Fogt'a book, "on Noxious and Beneficial Animals," which are quoted at full length in the fourth number of *Le Naturaliste Canadien*. For the benefit of the American reader, we translate from the original French.

"A remarkable fact has lately been published in the newspapers. There is actually a considerable commerce in toads between France and England. A toad of good size and in fair condition will fetch a shilling (twenty-five cents) in the London market, and a dozen of extra quality are worth one pound sterling (five dollars). You may see these imported toads in all the market gardens where the soil is moist, and the owners of those gardens even prepare shelter for them. Many grave persons have shaken their heads, when they heard of this new whim of the English; but those laugh the best who laugh the last. This time the English are in the right. I used to have in my garden a brown toad as big as my fist. In the evening he would crawl out of his hiding place and travel over a bed in the garden. I kept careful watch over him; but one day an unlucky woman caught sight of him and killed him with a single stroke of her spade, thinking she had done a very fine thing. He had not been dead many weeks before the snails ate up all the mignonette that formerly perfumed everything round that bed.

"Toads become accustomed to man, and do not appear to be incapable of tender sentiments. Everybody has heard the story, which seems borrowed from some old popular legend, of a toad which for thirty years lived under an espalier tree, and came out every evening, when the family was taking supper, to get his share of the meal like the dogs and the cats. The family shed tears on the day when an accident deprived that devoted servant of life. Some of my friends believe that, after having heaped benefits upon a toad, they have obtained from that despised animal evident proofs of gratitude. A certain Capt. Perry has told me that, in travelling through the interior of Sicily, he once found on the road a snake that was just about to devour a toad. He killed the snake, and the toad went his way. Six days afterwards he returned by the same road. All of a sudden something hops along close behind him. It was his toad, who had adopted this mode of expressing his gratitude towards his preserver, and who had positively recognized him. 'But, Captain,' I said to him, 'how could you possibly identify the particular toad whose life you had saved? One toad is as like another toad as one egg is like another egg.' 'That is very true,' replied the Captain, 'but he looked at me with such grateful eyes, that I could not doubt his identity for a moment."—*American Entomologist.*

Diseased Apple Trees.

To the Editor.

SIR,—Early last summer I noticed that one of my apple trees looked quite black in the bark, as if it had been scorched by fire. For a time I paid but little attention to it, till I saw the bark coming off in scales, and some of the branches showing signs of decay, though others were, to all appearance, perfectly healthy, and bore fruit. I thought, at first, the tree had been struck by lightning, as it was the only one affected. I am sorry to say such is not the case now; for I saw several trees showing the same symptoms. The bark turns black as described, in every case, at the fork of the tree first, extending gradually along the branches.

The trees are seven years planted last spring, and have been well taken care of, the land being tilled with root crops, till the spring of 1868, when it was sown with spring wheat and seeded down with clover. The soil is dry loam, and in good heart.

Could you, or some of your numerous readers, enlighten me as to the cause of, and if possible, the remedy for this blight, or whatever it may be?

J. R.

North Oxford.

NOTE BY THE HORT. EDITOR.—It is always very difficult to decide in such a matter as this, and particularly without seeing the trees and their surroundings. Are trees in other orchards in the vicinity similarly affected? Is the bark that turns black exposed to the direct action of the sun's rays? We have seen the upper side of branches that grew out in a northerly and north-easterly direction lose their bark, which died and turned black, and believe that it is in such cases caused by the sun's rays falling nearly perpendicularly upon them; for the bark not thus exposed to the sun retained its vitality. There is a disease known as the "fire blight," but that usually attacks the young shoots, turning them black.

Northern Spy Apple.

To the Editor.

SIR,—My attention has been directed to an article in your journal, over the signature of an "Amateur Fruit Grower," to which is appended a reply by yourself containing a request that I give your readers the benefit of my experience in the cultivation of the Northern Spy Apple, and my opinion of it as a profitable variety.

I have an orchard of 120 apple trees, 70 of the Northern Spy variety about 20 years old, which have been bearing *annually* for 9 or 10 years, and during the past four years have averaged 140 barrels of selected fruit per annum.

My method of cultivation is to top-dress the soil with short manure, either during the latter part of autumn or in winter, as may be most convenient.

As soon as the frost is out, go over the surface with a common harrow, for the purpose of pulverizing, and securing a more even distribution of the manure; follow with a shares harrow, which is so constructed that it will not cut or injure the roots. Going once over and afterwards crossing your work at right angles leaves the soil thoroughly comminuted to a depth of five or six inches.

Subsequent treatment consists in a repetition of the harrowing when weeds promise to become troublesome or the soil becomes compact.

On the subject of pruning I may remark that the Northern Spy tree requires careful management. The usual cut and slash system will not do; if adopted and adhered to, a rampant growth of long, straggling limbs may result, but fruit will be scarce, and in all probability inferior in quality. Thin the top by cutting out all middle branches, that the tree may acquire a spreading habit, and the sun's rays have a chance to penetrate freely.

Carefully husband all fruit spurs, whether found on the sides of large limbs or smaller ones; many of the best specimens of fruit grow on spurs of six inches or more in length, that may be found projecting from limbs four or five inches in diameter. Doubtless many of your readers will say all this involves considerable trouble. By way of encouragement to others to do likewise, I will state that the net profit on fruit sold from my 70 trees of Northern Spy last autumn amounted to the sum of $560, an average of $8 per tree.

Results similar to the above have so far established this apple, in my opinion as profitable to the fruit grower, that of an orchard of 40 acres, I have planted 800 trees of this variety.

O. T. SPRINGER.

Wellington Square, Jan. 19th, 1870.

When Apple Trees Bear Fruit.

A subscriber writes from Simcoe to enquire when his young apple trees will bear fruit. He says that within the past three years he has planted 700 apple trees of different kinds, which were from three to five years old when he planted them.

As a usual thing, apple trees begin to show fruit, if they are well cared for, by the time they have been five years planted in the orchard. The Red Astrachan, and Duchess of Oldenburgh begin to bear younger than most varieties, then the Ribston Pippin, Early Harvest and Hawley show fruit, but the Northern Spy waits until it has attained considerable size and age before it yields much fruit. The Baldwin, American Golden Russet, Roxbury Russet, and King of Tompkins County will yield considerable fruit when they have been planted seven years. But the profit of an apple orchard depends on the care bestowed upon it. If the insects are allowed to devour it, or the cattle to browse it, or the water to stand about the trees, or pruning neglected, the fruit will not pay for the investment.

Fruit-growing in the County of Kent.

On a recent visit to this county we had an opportunity of making enquiries into the state of fruit culture, and find that the inhabitants are fast becoming convinced that the growing of fruit is one of the most profitable modes of husbandry. Those who have orchards in bearing find that the cash returns from an acre or two will often exceed that of all the rest of the farm. The climate of this county is very favourable for the raising of all the finer fruits of this latitude. The peach, the quince and the grape, on suitable soils, are here grown in perfection. We say on suitable soils, for while the country about Chatham is very flat and poorly drained, and, in consequence, very poorly suited to the profitable cultivation of fruit, yet the southerly portion of the county is broken by a fine ridge, upon which the trees and vines thrive in perfection.

The writer was informed that within a few years a great many thousand fruit trees had been planted, and a large quantity of vines of different varieties of grapes. It was estimated that the aggregate number of acres planted with grape vines would not be short of three hundred. These, if properly cared for, will soon be in bearing, and the quality of the fruit, and its value for market and for wine, will soon be ascertained. We have every confidence that they will be found to be of very fine quality, and well suited to every purpose to which this beautiful and delicious fruit can, in this climate, be applied. It is very gratifying to learn that so much attention is being paid to the raising of fruit, and we trust the day is not far distant when good fruit will be so abundant as to be within the reach of the masses in all our larger towns and cities, and that this wholesome, nutritious and agreeable food will be consumed in double and treble quantities.

The Fruit Growers' Association has a goodly number of members in the County of Kent, and we hope they will invite the Society to hold one of its summer meetings within their borders.

KEEPING PEARS.—The President of the Fruit Growers' Association of Ontario says that those who have but a few pears of a sort will find it very convenient just to place those of each kind in a paper bag and tie it up. They can then be laid upon shelves in a cool room, free from frost, and will be kept without shrivelling or losing their natural flavour.

DAVISON'S THORNLESS BLACK-CAP RASPBERRY.—The *Horticulturist* for December, 1869, speaks in high terms of this variety of raspberry, as being both early and profitable. It has been found to be exceedingly vigorous, quite productive, from seven to ten days earlier than the Doolittle, very large, and fine sweet taste. It succeeds best in moderately rich loams, growing weak on light soil or in a heavy wet bottom.

TOMATOES may be made to ripen early by sowing the seed in March, in a box of very rich soil kept in the kitchen window. After the plants come up, they should be thinned out to about an inch apart. When all danger of frost is past, plant them out in *moderately* rich soil. If the soil be very rich and the season moist, they will grow too much to vines. After a cluster or two of fruit has set upon each branch, pinch it back to the leaf just above the fruit, and keep it pinched back. This will hasten the development and maturity of the fruit. A later sowing will furnish plants for a succession.

SENECA RASPBERRIES.—A subscriber enquires whether the Seneca Black-cap raspberry is a good hardy berry for field culture, and where he can get a lot of plants, and also wishes to know if there is any more profitable berry for raising for the market. The Davidson's Thornless and Mammoth Cluster are both better sorts than the Seneca, and are hardy and prodnctive. In some markets the red raspberries sell better than the black. You should ascertain which sell best at the place where you propose to market the crop. The plants can, no doubt, be had of all our nurserymen. See our advertising columns for names of most of our leading nurserymen.

CRANBERRY CULTURE.—A correspondent at Owen Sonnd asks whether the cranberry should be raised from seed or from runners. The easiest plan for him to adopt will be to procure a quantity of plants from some of the cranberry marshes. If there are none in his vicinity, any of our nurserymen could put him in the way of getting them. They could no doubt be raised from seed, but it would be a much slower process. Under favourable circumstances, the cultivation of cranberries is very profitable. There is an article on their culture in the first volume of the CANADA FARMER, page 106, which would well repay the trouble of perusal. If our correspondent does not happen to possess a copy of the first volume, he can be supplied from this office, either with the volume or with the number for April 15th, containing the article referred to.

PRUNING DWARF APPLE TREES.—"Farmer" asks "When is the best time of the year to trim or prune dwarf apple or pear trees, spring or fall, and why?" In this climate, the best time for pruning apple, pear, and all other trees, is in the spring or early summer, according to the object for which the pruning is done. The reason why is this: the intense cold of our winters acts unfavourably upon a wound or fresh cut made in the fall, often causing the death of the branch so cut, if not wholly at least in part, so that the wound does not heal over at all, or so slowly that the wounded spot is always unsound. If limbs are cut off in June, when the tree is growing vigorously, provided there be not too many cut off, so as to check its growth, the wound will heal the soonest. But it does not follow that therefore it is best always to prune in June.

Poetry.

The Stream that Hurries By.

The stream that hurries by on yon fixed shore
Returns no more;
The wind that dries at morn yon dewy lawn
Breathes, and is gone;
Those withered flowers to summer's ripening glow
No more shall blow;
Those fallen leaves that strew yon garden bed
For aye are dead.

Of laugh, of jest, of mirth, of pleasure past,
Nothing shall last;
On shore, on sea, on hill, on vale, on plain,
Nought shall remain;
Of all for which poor mortals vainly mourn,
Nought shall return;
Life hath his hour in heaven and earth beneath,
And so hath Death.

For all spring gives, and winter takes away,
We grieve in vain;
Vainly for sunshine fled, and joys gone by,
We heave the sigh;
On, ever on, with unexhausted breath,
Time hastes to death;
Even with each word we speak, a moment flies,
Is born, and dies.

If thus, through lesser Nature's empire wide,
Nothing abide—
If wind, and wave, and leaf, and sun, and flower,
Have each their hour;
He walks on ice whose dallying spirit clings
To earthly things;
And he alone is wise whose well-taught love
Is fixed above.

Three Roses.

Which is the happiest rose to-day,
Of the three that I know, I wonder—
The rose in the window, the rose on the lawn,
Or the rose in the meadow yonder?

Fair as a pearl is the face of one,
While it dewily gleams and flutters
Close where its peaceful heart can hear
What the peaceful household utters.

Velvet petaled and crimson lined,
With mosses its stem enfolding,
One burns up from the flattered lawn,
A marvel to all beholding.

And one on the barren meadow lives,
Near a boulder huge and sullen;
A pale, wild thing in a lonely world
Of thistle and weed and mullein.

Happy those treasured garden blooms,
In their white and crimson graces.
But she of the meadow is happiest,
Who looks but to God for praises!

Departed Days.

Oh, memories of green and pleasant places,
Where happy birds their wood-notes twittered low!
Oh, love that lit the dear familiar faces
We buried long ago!

From barren heights their sweetness we remember—
And backward gaze with wistful, yearning eyes,
As hearts regret, 'mid snow drifts of December,
The summer's sunny skies.

Glad hours that seemed their rainbow tints to borrow
From some illumined page of fairy lore,
Bright days that never lacked a bright to-morrow;
Days that return no more.

Household.

Catching Rats

Every one has found the difficulty of inducing these vermin to enter a trap, especially after one has been caught. Rat catchers say that the rats smell the iron, and at once dread difficulty and danger. I have been much troubled in our house by rats lately, and all attempts to catch them with ordinary means failed.

A friend with whom I was conversing on the subject, and to whom I stated my difficulties, told me to set the gin in the ordinary manner, and to cover it over by spreading a piece of thin wet paper on it. I did so, and placed some bread crumbs on the paper, and now find no difficulty in catching the rats. It seems they cannot smell the iron through the wet paper, which being softened offers no resistance to the action of the trap, and an excellent medium is thus obtained on which the rats will freely tread as being accustomed to, and death is the result. C.

How to Clean Old and Musty Barrels.

At this season of the year the farmer and beef and pork packers are often greatly troubled with musty, filthy smelling barrels, bottles, etc. How to cleanse them for use is an important question, which chemistry will answer satisfactorily.

Permanganate of potassa will entirely destroy all fungoid growths and fermenting matter, and render the barrel or bottle perfectly sweet and clean.

A pint of the permanganate is a sufficient quantity for a cider or beer barrel. It must be thoroughly rinsed so as to touch all parts of the barrel. Its deodorizing and disinfecting qualities are wonderful, as it contains five equivalents of oxygen, and will even deodorize carbolic acid and remove its pungent smell from the hands immediately.—*Hearth and Home.*

FRENCH ROLLS.—Boil one pint of milk, cut up two ounces of butter into it, add a little salt; when tepid, sift in one pound of flour, one egg beaten, one table-spoonful of yeast; beat these well together; when risen, form into rolls with as little handling as possible. Bake on tins.

PASTE THAT WILL KEEP A YEAR.—Dissolve a teaspoonful of alum in a quart of warm water. When cold, stir in flour to give it the consistency of a thick cream, being particular to beat up all the lumps; stir in as much powdered rosin as will lie on a dime, and throw in a half dozen cloves to give a pleasant odor. Have on the fire a teacup of boiling water; pour the flour mixture into it, stirring well all the time. In a few minutes it will be the consistency of mush. Pour it into an earthen or china vessel; let it cool; lay a cover on, and put into a cool place. When needed for use, take out a portion and soften it with warm water.

Entomology.

Cabbage Butterflies.

Though we recently brought before our readers a short account of many of the insects that are destructive to the cabbage and other allied vegetables, we yet do not hesitate to insert the following interesting article from the pen of Mr. C. S. Minot, of Boston, Mass., which appeared in the last number of our valued contemporary, the *American Entomologist*.

"There is a certain group of butterflies known, scientifically, by the name of *Pieris*, to farmers as 'Garden Whites' or 'Cabbage Butterflies.' They are easily recognized by the following characters: The wings are generally white, with inconspicuous black markings, and occasionally with green or yellow underneath; they are very broad and have no scallops or indentations in the margin; the hindwings in outline resemble an

FIG. 1.

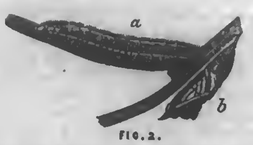


FIG. 2.

egg. The feelers (palpi) are rather slender, but project beyond the head; the antennæ have a short flattened knob. Their flight is lazy and lumbering. The caterpillars are nearly cylindrical, taper a little towards each end, and are sparingly clothed with short down, which requires a microscope to be distinctly seen. They suspend themselves by the tail and a transverse loop, and their chrysalids are angular at the sides and pointed at both ends.' (Harris).

"This genus is interesting, though disagreeably so, to every farmer, for the different species are very destructive to various vegetables: among others, cabbages, nasturtium, mignonette, cauliflowers, turnips, and carrots. We propose now to notice only two of the species, as that number will serve to indicate the habits of the whole genus—which every farmer should be familiar with, so that he may be able to recognize and destroy such dangerous foes.

"The first species we shall mention is the Rape Butterfly (*Pieris rapæ*, Schrank, fig. 1). This insect has been the occasion of some little speculation and great interest to our Canadian and New England entomologists, inasmuch as it has been introduced to this country from England, and is probably one of the most perfect instances on record of any insect being imported from one country to another and becoming completely naturalized in its new quarters. There does not seem to be the slightest doubt that this is the English species. It was probably introduced in 1856 or '57. It was first taken in Quebec in 1859, and in 1863 it was captured in large numbers by Mr. Bowles in the vicinity of that city. As the eggs are laid on the undersides of leaves, it was probably introduced in this form, the refuse leaves being thrown out of some ship; after which the larvæ hatched, and finding themselves in the neighbourhood of their food, ate and flourished. Being, moreover, hardy little fellows, they were perfectly able to endure a change of climate. In 1864 it had spread about forty miles from Quebec as a centre; in 1866 it was taken in the northern parts of New Hampshire and Vermont; in 1868 it had advanced still farther south, and was seen near Lake Winnepesaugee; and finally this last summer it was taken around Boston, Mass., and a few stray specimens in New Jersey. There seems to be no doubt that this destructive insect will, in a few years, spread over the whole of temperate North America; for the other species of the genus have an extensive geographical range, and not being particular as to its food, it will have no difficulty on that score. Indeed, the larva and pupa seem to have an unusual power of accomodating themselves to circumstances,—for instance Mr. Curtis, in his *Farm Insects* of England, states that the caterpillars have been found feeding on willow.

"Now let us look at the larva (Fig. 2, a), and its habits. It is one and a half inches long; pale green, finely dotted with black; a yellow stripe down the back, and a row of yellow spots along each side in a line with the breathing holes. In England and around Quebec it has done immense damage to the cabbages and other Cruciferæ (*Cress* Family) by boring into the very heart of the plant, instead of being content with the less valuable outer portion as some other species are. On this account the French call it the 'Ver du Cœur,' or Heart-worm. When about to transform, it leaves the plants on which it has been living, and fastens itself on the underside of some stone, plank or fence-rail, where it changes into a chrysalis in the middle or latter part of September, and in this stage it hybernates, producing, in New England at least, the perfect insect early in April. The chrysalis, or pupa (Fig. 2, b), is variable in colour, being sometimes yellowish-brown or yellow, and passing thence into green, speckled with minute black dots. The brood of butterflies that emerges from the pupa state in the spring lays eggs shortly afterwards, and these eggs produce caterpillars, which in their turn change to chrysalids in June, and in seven or eight days more the butterfly appears, which again lays its eggs for the second brood, which, as before stated, hybernates in the pupa state.

"In the perfect butterfly the body and head are black, and the wings white, marked with black as follows: In the female (Fig. 1) small space at the tip and three spots on the outer half of the front wings and one spot on the hind wings; beneath, one spot on the front wings, but none on the hind wings, which

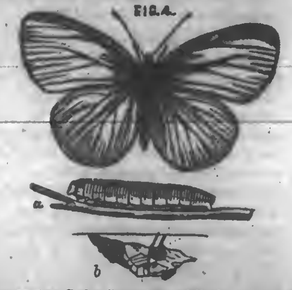
FIG. 3

are commonly yellowish, sometimes passing into green. The male (Fig. 3) has only one spot above and two beneath on the front wings, and a black dash on the anterior edge of the hind wings. There is a variety of the latter sex which has the same markings, but differs from the type in the ground colour being canary yellow. Curiously enough, this variety has been taken both in this country and in England.

"These butterflies occasionally assemble in great numbers. At one time a flight crossed the English Channel from France to England, and such was the density and the extent of the cloud formed by the living mass, that the sun was completely obscured for a distance of many hundred yards, from the people on board a ship that was passing under this strange cloud.

The Potherb Butterfly (*Pieris oleracea*, Boisd., Fig. 4), is the next species to be described. It has a very wide range, reaching rarely as far south as Pennsylvania, extending eastward to Nova Scotia, and at least as

FIG. 4.



far west as Lake Superior, while in the north it is found as high up as the Great Slave Lake in the Hudson's Bay Company's territory. This butterfly has a black body; the front wings are white, marked above with black at the base, along the front edge and at the tip; the hind wings are white above and lemon-yellow beneath, but without markings except a few black scales at the base.

"About the last of May numerous specimens of this species may be seen over cabbage, radish or turnip beds, or patches of mustard, where, on the underside of the leaves, it deposits its eggs These are yellowish, nearly pear-shaped, longitudinally ribbed, and one-fifteenth of an inch in diameter, and are laid seldom more than two or three together. In a week or ten days the young caterpillars are hatched; in three weeks more they have attained their full growth which is an inch and one-half long. Being slender and green (Fig. 4, *a*) they are not readily distinguished from the leaves on which they live. They taper a little towards each end, and are densely covered with hairs. They begin to eat indiscriminately on any part of the leaf. When they have completed the feeding stage they quit the plants and retire beneath palings, etc., where they spin a little tuft of silk, entangle their hindmost feet in it and then proceed to form a loop to sustain the front part of the body in a horizontal or vertical position. Bending its head on one side the caterpillar fastens to the surface, beneath the middle of its body, a silken thread, which it carries across its back and secures on the other side, and repeats this operation until a band, or loop, of sufficient strength is formed. On the next day it casts off the caterpillar skin and becomes a chrysalis (Fig. 4, *b*). This is of a pale green and sometimes of a white colour, regularly and finely dotted with black; the sides of the body are angular, the head is surmounted by a conical tubercle, and over the forepart of the body, corresponding to the thorax of the included butterfly, is a thin projection, having in profile some resemblance to a Roman nose. The insect remains in this stage for ten or twelve days, when the butterfly appears.

"In the last of July and first of August these insects may be seen in large numbers depositing their eggs for a second brood, which wintering in the pupa state, produces the perfect insect the following May.

"This butterfly varies considerably. There are never, we believe, perfectly white specimens, though often nearly so. Again, some specimens have very faint indications of spots arranged as in *P. rapæ;* but on the underside are found the widest limits of variation, for not only do the tips of the front wings become distinctly greenish, or lemon-yellow, and the veins of that portion bordered with grayish scales, but the hind wings may also have the ground colour distinctly greenish, lemon-yellow, or whitish, and the veins display gray scales on each side.

"By taking advantage of the habits of these insects, they might be nearly exterminated. If boards are placed among the infested plants, about two inches above the ground, the caterpillars when about to change will resort to them, and there undergo their metamorphoses. They may then be collected by hand on the underside of the boards and destroyed. As the butterflies are slow fliers, they may be taken in a net and killed. A short handle, perhaps four feet long, with a wire hoop and bag-net of muslin or mosquito netting, are all that are required to make this useful implement, the total cost of which need not be more than fifty or seventy-five cents. The titmouse is said to eat the larvæ, and should therefore be protected and encouraged."

Carrion Beetles.

In a recent article on Water Beetles, we gave an account of two principal families belonging to that group, viz: the Diving Beetles, and the Whirligigs; there is yet another great family of aquatic beetles which we did not then mention, as it belongs to a different sub-tribe of this order of insects; its members are termed "Water Lovers," (*Hydrophilidæ.*) from their habits.

The members of this family live either in the water, or in the damp margins and shores of streams and ponds; they are carnivorous in the larval state, but as beetles they feed upon refuse and decaying vegetable matter, thus uniting the qualities of the two families already noticed, and those of the scavenger beetles, which we now purpose bringing before the reader. A considerable number of these "water-lovers" are found in Canada; some of the species attain a very large size, while others are quite minute, and not to be discerned without close observation. As these creatures are not of any very general interest, we may dismiss them from our notice and pass on to the more conspicuous and note-worthy Carrion Beetles.

These curious and interesting creatures belong to the family *Silphidæ*; they are distinguished by the flattened form of their bodies, their knobbed antennæ, their habits, and the black nauseous fluid they discharge when handled. Their grand duty is to remove from the surface of the earth all dead or putrefying animal matter, which would otherwise become noxious and offensive. They are usually found in or close to carrion of all sorts, though sometimes they devour putrid fungus; occasionally we have taken them on the wing, and have even found them attracted by light into our rooms in summer. The *Silphides* are divided into several genera, the chief of which are *Necrophorus*. including the Sexton or Burying Beetle, and *Silpha*, the Carrion Beetles; both of these genera are well represented in Canada.

The Sexton Beetles (*Necrophorus,*) in spite of their loathsome occupation, are decidedly handsome insects. Their usual colour is deep shining black, variegated with rich orange-red spots; beneath they are frequently ornamented with yellowish silken hair like that of a Humble-bee; their antennæ are very remarkable, consisting of a jointed stem terminated by a rose-coloured or orange knob composed of four little cups or plates piled one above the other. The largest species we have is called the American Sexton (*N. Americanus*, Oliv.); it is nearly an inch and a half long, deep black, ornamented above with large orange-red spots on the head, thorax, and wing-covers, and beneath with light yellow hairs on the breast. It much resembles in shape and general appearance the common species figured in the margin, the

Round-necked Sexton (*N. orbicollis*, Say), but is considerably larger and handsomer. These insects are wonderfully powerful for their size, their flight is vigorous, and they run with rapidity. They are not at all uncommon during the summer months; no sooner, indeed, is any small dead animal or piece of flesh left in a decomposing state on the surface of the ground, than they assemble in troops to bury it. After a careful examination of the object, as if to take its dimensions, and ascertain how many labourers would be required for the job, several of them commence operations by creeping beneath the carcass, and digging away the earth with their fore-legs; they continue their labours till they succeed in sinking it several inches, sometimes nearly a foot, beneath the surface; and at the end of twenty four hours the object is generally out of sight, unless it be particularly large, or the ground difficult to work in. In this labour the males assist, and as soon as it is accomplished, the females deposit their eggs in the carcass. Many curious and interesting accounts have been published respecting the habits and instincts of these creatures,—two interesting naratives of the kind are given in the CANADA FARMER for July 15th, 1868, page 214. A German Entomologist relates that he confined four beetles of this genus in a small space, and supplied them with the following quantity of materials: four frogs, three small birds, two fishes, one mole, two grasshoppers, the entrails of a fish, and two pieces of ox's liver; they succeeded in interring the whole in fifty days. Of course this quantity was much more than sufficient for the nourishment of their future progeny, for whose benefit the burying takes place, and it was probably only because these carcasses were placed within their reach that they continued their burying propensities. (Westwood). As a further instance of their powers, we may mention the following case, related in the *American Entomologist*:—

"On one particular occasion, having deposited a full-grown rat upon newly-moved earth in a particular spot, as a trap for these Burying-Beetles, we found that in twelve hours' time the carcass had been completely buried, all but the tip of the tail, by a single individual of our largest and handsomest species, (*N. Americanus*, Oliv.) a beetle which is only one and a half inch long. It would puzzle an Irish labourer to bury a full-grown whale in the same length of time; yet proportionally this would be a task of precisely the same magnitude."

The Carrion Beetles (*Silpha*, etc .,) differ from the foregoing in their more flattened shape, and dulness of colour, as well as in their habits and minor peculiarities of structure. Our largest and commonest species is the Surinam Silpha (*S. Surinamensis*, Fab.) Its colour is uniformly black, with a transverse irregular, reddish coloured band or series of spots, near the ends of the wing-covers. It is found abundantly in carrion during the summer, and may certainly be considered from its fetid odour and repulsive appearance an exceedingly disgusting, even though highly useful creature. It does not bury its food, like the Sexton Beetle, but may be found swarming in and over exposed carcasses during the summer months, evidently revelling in filth. The handsomest species of this genus is the *Shield-bearing Silpha* (*S. peltata*, Catesby,) which is remarkable for the broad thin expansion of its thorax in the form of an ancient semi-circular shield, of a creamy-white colour, ornamented in the middle with a device somewhat in the form of a cross. We have occasionally taken it in numbers about the body of a dead fish. The larvæ of this genus, unlike those of the preceding one, are obliged to seek their own food, which is of the same character as that of their parents, and consequently have strong legs, and a crustaceous flattened body.

All of these insects, it is hardly necessary to say, in conclusion, are pre-eminently, though indirectly, beneficial to mankind, and therefore should by no means be destroyed.

New Species of Insects.

An esteemed correspondent has written to us as follows respecting a recent article on a new species of insect:—"You speak of this creature as something new under the sun—an insect that had no existence until lately. At least such is the idea I gathered from a hasty reading of your article. While I am not prepared to doubt it, the enquiry arises: Has the Almighty spoken into existence a special creation in this insect, or is it the result of creative laws by which spontaneous creations, so to speak, come forth at proper times? Or has this insect existed during all the past without manifesting its particular propensities until lately?"

We were rather surprised at having such questions put to us by our correspondent, as we thought that everyone knew the meaning of the expression "a new species," when employed by naturalists. It simply means *a species new to science*,—one that has not before been described, or come under the observation of man; not by any means a new work of creation. Since the time when the Almighty Creator "ended His work which He had made," and pronounced it "very good," we do not believe that any new acts of creation have been performed upon our globe, or that any new species of animals have been endowed with life, however much, through His providential care, and through the action of laws which He set in motion, individual species may have been modified in their appearance, ornamentation, habits, food, or mode of life. It has been proved that many species have become *extinct* during recent times, (as, for instance, the Dodo among birds), and undoubtedly this process of extinction has been going on through all time; but it cannot be shown that any species has been *originated* during the observation of the human race. Immense changes are wrought in the appearance and habits of many animals and plants by domestication, breeding, climate, food, etc.; but the species remains the same through all its modifications; and whatever theory we may adopt as to the proximate causes of these variations, whether the fashionable one of "natural selection" or not, we must get back at length to the original fact that "in the beginning God created the heaven and the earth," and that "all things were made by Him, and without Him was not anything made that was made."

Currant-worm Parasite.

We are pleased to find that Mr. J. H. Thomas, of Brooklin, Ont., observed, as much as five years ago, a parasite affecting the larvæ of the Currant-bush Saw-fly; it was probably the same species as that recently noticed in our columns, which we had the gratification of discovering last summer, and which was named by Mr. Walsh *Hemiteles nativorus*. Mr. Thomas writes as follows:—"At the time of which I speak I had a fine yard of red currant bushes, which I found to be literally covered with the larvæ of the Saw-fly. Learning from an old gardener that hellebore would destroy them, I purchased some, and when dusting the bushes spent some time in watching the worms and the effect of the hellebore. While doing so, I several times discovered a small insect resembling a mosquito nearer than anything with which I am acquainted, and yet as unlike that sanguinary animal as any one thing can be unlike another, thrusting its ovipositor into the bodies of the Currant-worms. This they did not appear to relish much, judging from their writhing and twisting during the operation, sometimes letting go their hold upon the leaf and falling to the ground. This ichneumon-fly would thrust its ovipositor into the same worm three times in some cases, in others only once or twice. Seeing the pain, or manifestation of pain, the worms endured, I was half inclined to attack their ichneumon destroyers, which I took these insects to be, and let the worms escape, but concluding that my currant bushes were of more value than the worms, I turned in with my hellebore, and as the boys say 'gave them fits,' for the hellebore made them writhe even more than the ovipositor of the fly. I presume this must be the same as that of which you speak. It was of a dark colour, with long legs; in size between the common mosquito and the ugly beast called by school-boys 'Cock-mosquito,'—a creature not to be confounded with 'Grandfather greybeard,' which in my younger days always told in which direction the cows were by raising one of its long hair-like legs; sure to be correct, point which way it would!"

THE SQUASH BUG.—My last summer's experience in this section with the Squash-bug (*Coreus tristis*, De Geer), showed no difference in favour of any variety of squashes. I raised the "White-bush Scallop" and found them to be as hard on it as on any other kind.

The best means that I hit upon of saving my squashes from the pest, was to remove the earth from the roots of the plants as low as it would bear, and fill up with a mixture of dry ashes and salt. Without this precaution I found them going down into the ground on the under side of the vine, and working where I could not get at them.

In addition to the salt and ashes application, I trimmed off all the leaves that touched the ground as soon as they came down, and spread them out under the plants, and upon examination, mornings and evenings. I generally found about all the old bugs nicely housed away beneath the leaves. I think leaves are far better to trap them under than boards or shingles. A decaying or wilting leaf seems to attract them; you will usually find them on such leaves when looking over your vines.—*J. P. Steele, in the American Entomologist.*

Many plants could not be perpetuated but for the agency of insects, and especially of bees; and it is remarkable that it is chiefly those which acquire the aid of this intervention that have a nectarium and secrete honey.

In some occasional cases, where the nectarium of the flower is not perceptible, if the spur of such a flower, which usually becomes the depository of the nectar that has oozed from the capsules secreting it, be too narrow for the entrance of the bee, and even beyond the reach of its long tongue, it contrives to attain its object by biting a hole on the outside, through which it taps the store.

ATTACKS OF INSECTS AFFECTED BY COLOUR.—Darwin (Animals and Plants, ii. 277) states that "it is certain that insects regulate in many cases the range and even the existence of the higher animals, whilst living under their natural conditions." Under domestication light-coloured animals suffer most; in Thuringia the inhabitants do not like grey, white, or pale cattle, because they are much more troubled by various kinds of flies than the brown, red or black cattle. An Albino negro, it has been remarked, was peculiarly sensitive to the bites of insects. In the West Indies it is said that 'the only horned cattle fit for work are those which have a good deal of black in them. The white are terribly tormented by the insects; and they are weak and sluggish in proportion to the black.'" We should like to learn from our farmer friends whether they have ever observed similar effects of colour upon the attacks of insects in this country. It would be both interesting and useful to know whether such is the case here or not.

Apiary.

Bees—Their Nature and Habits.

As I am daily receiving letters of enquiry about bees, in which many questions are asked concerning their nature and habits, I have thought it best to answer such questions through the journal, for the benefit of all, in a serica of articles under the above heading.

Knowing that many are inclined to doubt a plain statement of facts, because they do not understand how such and such things could possibly have been discovered, or known, I have decided, in stating important facts, to explain how we know them to be facts; which course will perhaps better satisfy all our readers.

I will commence with the queen, or, as called by some, mother bee, from the fact that she is the mother of the whole colony—the only bee in the hive that lays the eggs which produce workers or queens. Though this is a well admitted fact, yet I have met those who doubt it and seem to think that the drones are the bees that lay all the eggs, and that the queen bee should be called a king bee. Others again have told me that they did not believe there was either a king or queen bee for, said they, "we have kept bees for thirty years and have never discovered such a thing;" and they would only be convinced of the fact by our showing them her majesty. That drones do not lay the eggs may be proved by examining a hive any time in the spring before drones appear; as there will be plenty of eggs in the combs, it is certain that some other bee or bees must have laid them. Then to prove that the queen produced them, remove her from the hive, and in four days there will not be an egg in the hive, as all the eggs will in that time hatch and become larvæ. Replace the queen, and in a day or two the combs are again filled with eggs. Hence it is easily proved that the queen is the mother bee of the hive. But there is no real necessity for going to all this trouble, for by killing one each of the different classes of bees, and dissecting them, it is easy to discover even with the naked eye to what sex they belong. A queen bee is produced from the egg in about 16 days, or from the larvæ in about 10 days. To prove this we have only to put a quart of bees in a small box large enough to hold two or three frames six inches square, filled with comb and honey, shut them in, and put them in the cellar, or any dark cool place for 48 hours; take them out at night and open the entrance; the next morning, introduce into this small hive a piece of comb containing eggs but no larvæ and in 16 days they will have produced a queen; or if a piece of comb be introduced containing larvæ not over five or six days old, they will produce a queen in 10 days. By this, it will be seen, that if a queen is removed from a colony the bees will produce themselves another in from ten to sixteen days, and generally in from ten to twelve days, as there are usually both eggs and larvæ in a colony from which a fertile queen has been removed. It will therefore be remembered by those who may desire to remove an Italian queen from a stock, for the purpose of getting queen-cells to put in other stocks, that all such cells must be cut out on the morning of the tenth day after the Italian queen was removed, unless it be early in the spring when the weather is cool. Then it might be safe to leave them until the eleventh day. If left longer than that, some one of the queens will escape from the cell and destroy all the others. Yet it is not well to cut them out before the tenth day, as they are easily injured or chilled, and the operation is not as likely to be successfull, especially in the hands of the inexperienced.

A queen remains in the hive after she has escaped from her cell from five to eight days (if she does not go off with a swarm), and then goes out on her bridal tour to mate with a drone.

IMPREGNATION.

I closed my last by saying that a queen goes out on her bridal tour to mate with a drone from five to eight days after she leaves the cell, provided she did not go off with a swarm. Many are not aware that a queen goes off with a swarm before she has mated with a drone; yet such is the case. As a rule, all swarms that come off after the *first* or *top* swarm, have young queens that are unimpregnated. Hence they must go out to meet the drones after the swarms are hived. I would not be understood to say that these queens will not go out about the usual time, that is, from five to eight days after they escape from the cell; yet going with a swarm may provoke an earlier flight by a day or two, or retard it to the same extent Even when they do not go with a swarm, in some cases, they may go earlier than five days, and in other cases it may be over eight. From five to eight days, however, may be considered the rule, and unless the weather is very fine, and the honey harvest good, it will more likely be nearer the eighth day than the fifth, when the queen goes out. She generally takes wing in the afternoon, when the drones are flying abundantly; and if watch is kept at the entrance of the hive from twelve to two o'clock, the queen may be seen going out or returning. There is generally more or less commotion when the queen leaves, and especially so in small hives made for queen breeding, containing only a few bees. It is necessary to always have brood in the larva state in such hives at the time the queen leaves, otherwise the bees are almost sure to go with her—"swarm out," as it is called, and all be lost. The hives should also contain plenty of honey or feed. As has already been stated, the queen goes out to mate with a drone while on the wing in the air. If she does not meet with one in a short time, she returns to the hive, and remains a while, and then goes out again, and so continues to do until she has become impregnated. This may not take place the first flight or the first day, and she may even require to go the second and third day, if only a few drones are flying; but where there are many on the wing she may meet with one in a short time, and return to the hive. In one instance I saw the queen leave the hive, and in fifteen minutes she returned impregnated. In the act of coition, the organ of the drone is always detached from the body of the drone, and left attached to the body of the queen, and must remain there for a certain time in order that the queen become fertilized; but how long it must remain is not known. It is stated upon very good authority that if this foreign substance is removed shortly after coition, either by the bees or by human aid, the queen will require to mate again. But more of this in our next. By what has already been stated, it will be seen how we know that a queen has mated with a drone. After being fertilized, the queen returns to the hive, not to leave it again, as a general thing, until she goes off with a swarm. The queen does not commence to lay immediately on her return. Generally, forth-eight hours after, or perhaps a little more, eggs may be found in the hive. In some few cases it will be much longer than that. If the colony is strong, and the honey harvest abundant, a young fertile queen will lay from two thousand to three thousand eggs in a day. This is easily determined by putting a swarm containing a young fertile queen into a frame hive filled with empty cards of comb. At the end of four days remove the cards, and find the number of square inches filled with eggs. Multiply by fifty, which is the number of cells to the square inch, and divide by four, and you have the number of eggs laid in a day. The fertility of the queen generally continues for three or four years, when she becomes worthless, laying only drone eggs, and soon dies or is destroyed. It will also be understood that when a queen has become fertilized she never mates with a drone again while she lives; and though it is her nature to mate with the drone on the wing, yet since the introduction of Italian bees it has been the wish of bee-keepers to discover some method by which impregnation could be controlled, and the queen caused to mate with such drones as might be selected. Some time since I stated in this journal that such a discovery had been made by a noted lady apiarian in the United States, and that as soon as I was at liberty to do so, I would publish the secret. I am now at liberty to publish it. In fact, it has already been published in the States. A Mr. Freeman Moore, of Ohio, claims that he made the discovery about the same time. Mrs. Ellen S. Tupper, of Iowa, the lady discoverer, learning that such was the case, requested Mr. Moore to publish his method, which he did in January last. It will appear in my next.

J.H. THOMAS.

Brooklin, Ont

Agricultural Intelligence.

Board of Agriculture.

The Council of the Agricultural and Arts Association met in the Agricultural Hall on Wednesday, Feb. 23, the President, Hon. D. Christie, in the chair.

The following officers were then appointed:—Hon. Jas. Skead, Vice-President; Hugh C. Thomson, Secretary; and Geo. Graham, Treasurer.

The time for the Fall Show was named for the 19th September next.

It was resolved that the Board memorialize the Legislature, asking a remission of duty on animals imported for the purpose of improving the breeds of cattle in this country.

After the reading of a communication from the Secretary of the New York State Agricultural Society on Shade Trees, the consideration of which was postponed, the annual report of the Association was read. This document, which has already appeared in the report of the Commissioner of Agriculture, briefly detailed the Society's proceedings during the past year, all of which are familiar to our readers. The satisfactory progress of the Veterinary College was referred to, and in regard to its present position it was stated that the Council had voted Mr. Smith an annual grant of $150, to assist him in providing Lecture and Dissecting Rooms for the use of the school. In accordance with this arrangement, Mr. Smith has erected a commodious building adjoining his Infirmary, where the lectures are now given, and improved facilities are afforded to young men for acquiring the profession. 28 students are at present attending the lecturer, of whom the greater number design studying the Art as a Profession.

The abstract of the financial report shewed that the total amount received by the Treasurer during the year was $34,527 77, and the total amount disbursed $32,877 80, leaving a balance on hand at the end of the year of $1,649 97.

All the premiums in connection with the Exhibition, and all the admitted liabilities of the Association, had been paid up.

The following gentlemen were appointed to constitute the Executive Committee for the year 1870:—The President, Dr. Beatty, Rev. Mr. Burnett, Messrs. Whyte, Gibbons, Graham and Rykert.

The committee were instructed to make arrangements with the Mayor of Toronto to secure the necessary accommodation for the Provincial Exhibition.

The salary of the Treasurer for the current year was increased to five hundred dollars.

The meeting adjourned till the following day.

SECOND DAY'S PROCEEDINGS.

In the afternoon of the next day the Board again met, and after the transaction of some minor details of business, proceeded to the new building erected for a veterinary college, and listened to an excellent address delivered by the Principal, Professor Smith, in which he reviewed the origin and progress of the school, detailed the course of study pursued, and explained the circumstances which had led to the erection of the present building, in which the students enjoyed the advantage of ample and suitable accommodation for lecture room, museum, and dissecting room, and the structure in its entirety being set apart for the purpose of the Veterinary College would doubtless tend, as it was meant to do, to give greater stability and permanence to the institution, and aid the progress of the Veterinary Science throughout the Province.

At the conclusion of this address, the members of the Board inspected the new building, the stables and outbuildings, and expressed themselves highly pleased with the admirable manner in which all the appointments were arranged.

The members of the Board returned to the Agricultural Hall, and business was resumed.

On motion of Mr. Rykert, seconded by Mr. White, in amendment to the motion made by Mr. Walton on Wednesday, it was decided to hold the Fall Show on the 3rd October next.

The subject of importing seed was then introduced by Mr. Walton, who moved, seconded by Mr. Cowan, "That the Hon. Commissioner of Agriculture at Washington be respectfully requested to place the Council of the Agricultural Association of Ontario on his exchange lists for grain, seeds, &c., with the assurance that the Council of the Agricultural Association will have great pleasure in sending, from time to time, exchanges of all the varieties of grain, seeds, &c., which may come into their possession."

The proposition was favourably received, and the resolution carried. Mr. Farley, however, stated that though he did not object to the proposition, he was convinced from experience that it would never do to import seeds from the South to the North. It would be better to exchange with Scotland or some other northern country. Experience had proved to him that not only seeds, but fruit and other trees from the South never thrived in Canada. The plan, however, was one which involved very little expense.

Mr. Weld said the Genesee and other kinds of wheat, in fact, our best species of grain, were imported from the United States. He also urged his own personal claims in the matter, as one who had for some time devoted particular attention and incurred considerable expense in efforts to import good cereals and other seeds into the country.

The following letter from Hon. Mr. Carling was read:—

"OTTAWA, Feb. 22, 1870.

"SIR,—I beg to submit for your consideration whether a plan might not be adopted which would render the working of the affairs of the Agricultural and Arts Association more economical than at present, without in any degree lessening its efficiency. A valuable library of books relating to Agriculture and Arts is in possession of my department, and the Association also has a very good collection. These might be amalgamated and made more available and of greater use to the public than in the places which they occupy. The working expenses of the Association also seem to be very large; the "miscellaneous" items so much so as to create a general feeling of surprise. The room formerly used for the Legislative library is now unoccupied. It connects with the present Legislative library. The larger portion of it might be fitted up for the united libraries, and the other portion as a meeting room for the Council and Committees of the Association. The joint libraries would be available for use by the members of the Legislative Assembly, during the sittings of the House, and would also be open at all times to the public for reading and reference. The person who would act as Secretary of the Association could also take charge of the library, whilst an officer of my department might act as Treasurer at a small addition to his present salary. This arrangement would be a great convenience, as both officers would then be accessible to the public at all times. The duties of messenger could no doubt be performed by the staff at present employed in the Parliament Buildings without any additional expense, so that the services of the messenger at present employed by the Association could be dispensed with. I have no doubt that, under the proposed arrangement the working expenses would be reduced by at least one half. Besides this, the present Association's building, which I believe is valued at about $20,000, could be either sold or rented, and the annual interest on the proceeds of the sale, or the annual rent, could be appropriated for special prizes in the agricultural or the industrial arts. Will you have the goodness to give to the foregoing your careful consideration, and to bring it before the notice of the Council at its next meeting, which will commence to-morrow—and let me know if any action is taken in regard to it.

"Your obedient servant.

"JOHN CARLING,

"Commissioner.

"To the President of the Council of the Association of Agriculture and Arts for Ontario. Toronto, Ontario."

This communication, which it was stated had only been received that afternoon, elicited a warm discussion, the President contending that the implied charge of extravagance was unmerited; that in the principal item of expenditure that had caused dissatisfaction, namely, Mr. Glackmeyer's claim, Mr. Carling himself, as having introduced that gentleman and recommended him to the Board, was as much responsible as any one, and had shown himself as liable to make mistakes as others. He considered the Commissioner's proposition as the first step towards placing the whole control of the Association in the hands of the Government, and believed that such a result would be disastrous not only to the Association itself, but to the agricultural interests of the country. The Minister of Agriculture, newly

appointed from time to time as the Government changed, would scarcely ever be practically acquainted with the interests and requirements of the farmer, and it would be far better that the Association should be altogether independent of Government aid, than that it should be thus merged into the Bureau of Agriculture.

Professor Buckland explained that Mr. Carling deplored and condemned Mr. Glackmeyer's exorbitant charge as much as any one, and could assure the Board that the Commissioner had no intention whatever of interfering with the independence of the Association. He entirely agreed in the principle enunciated by the President that the Board should have no connection with parties, and nothing to do with politics.

After much animated discussion, it was resolved to postpone the further consideration of the subject till the next meeting.

A communication from the Ontario Poultry Association, asking for a grant of one hundred dollars per annum from the Agricultural Association was, at the suggestion of Mr. Rykert, allowed to stand over for consideration at the next meeting.

IMPORTATION OF CATTLE.

The SECRETARY submitted the following memorial to the Senate for the approval of the Board:—

To the Honourable the Senate of the Dominion of Canada, in Parliament Assembled:

The Petition of the Council of the Agricultural and Arts Association of the Province of Ontario,

HUMBLY SHEWETH:

That great benefit has heretofore resulted to the Agricultural interests of Canada from the importation from Great Britain and foreign countries, of animals of superior breeds for the purpose of improving the existing breeds of the country, and that the general prosperity of the country has been thereby promoted.

That there is much risk and expense involved in the importing of such superior animals, and that therefore it is highly desirable that such importation should not be burdened with any additional cost which can be avoided; but that on the contrary, it should be encouraged by a liberal policy on the part of the Government.

That the existing Customs duty of $15 per head on horses, and $10 per head on horned cattle, $1 per head on sheep, and $2 per head on swine, tends to discourage the importation of superior animals for breeding purposes, and thereby retards the progress of one of the most important interests of Agriculture, without being of any corresponding advantage to the public revenue.

Your petitioners therefore pray that such duties may be remitted in so far as they relate to animals of superior breeds imported for breeding purposes.

And your petitioners, &c. &c.

The memorial was adopted without discussion.

Some farther business of an unimportant nature was then disposed of, and the meeting adjourned till the 1st of June next.

Mark Lane Harvest Reports.

The *Mark Lane Express* has a lengthened article on the harvest returns of the past year, embracing in the estimates the crops of the European and American continents, and concludes that the present low prices for grain cannot be maintained during another season. It does not anticipate any immediate or sudden rise.

"But during the summer and early part of autumn," it observes, "we most assuredly (even under the most favourable prospects for the crops) expect a smartish rise, which will increase in intensity should anything occur to endanger the growing crops. Prices being low, cannot well go much, if anything, lower, but owing to their low standard, there is plenty of scope for a smart reaction upwards."

In a rather long review of the season in England, it is said that of fall wheat a somewhat larger breadth than usual was sown, but less (in fact for a series of years there has not been so little) spring wheat sown. As to the yield, it is said that "On the whole the wheat crop is considered 10 to 15 per cent. below an average, or twenty-five to thirty per cent. under that of 1868. In Wales, crops satisfactory in quantity and quality." In Scotland "what may be called nearly an average, though about 20 per cent. below that of last year; but quality and condition various." In Ireland there was about 4,033 acres less land sown to wheat; and "on the whole, the yield is about 15 or 20 per cent. below an average." In summing up it is said: "Taking everything into consideration, it is thought the yield of wheat in Great Britain and Ireland is one-eighth below an average, and that owing to diversity in quality more fine wheat will be wanted, and that an importation equal (in round numbers) to eleven million quarters of wheat and flour will be required."

There are detailed reports from other countries, but we only have room to state that in France the crop of wheat is called ten per cent. under an average in quantity, quality fine, but with the old stocks is supposed to have enough. Holland will have to import more or less, as usual; it is thought she will require even more foreign aid than last year. Belgium will require fully as much, if not more, than last year. Switzerland will require her customary assistance. Germany is said to be able to spare one and a quarter millions of quarters, against one and a half last year. Russia is considered as able to spare the same as last year, which was one and a half million quarters, although, if prices do not improve, the exports may fall short of this amount. In Austria and her provinces the crop is not so good, or two-thirds to three-quarters of an average. In Hungary, thirty to fifty per cent. under an average. Last year the exports were put at one and a half millions, this year at three-quarters of a million wheat and flour. Reports from other countries are also given, but perhaps the above, condensed in the columns of the *Country Gentleman*, is enough to show the present supply of, and demand for, wheat in Europe, while it will give a much better understanding of the facts than the usual accounts and reports in the newspapers.

Testimonial

At the last annual meeting of the West Northumberland Agricultural Society it was resolved to present their Secretary, Charles Bourn, Esq., with some suitable testimonial, in token of the appreciation by the members of his long and faithful services to the Society. The testimonial consisted of a handsome mother-of-pearl inkstand, holding two beautiful cut-glass ink bottles, and a splendid gold pen and ebony holder. The presentation was made by G. Bennett, Esq., (late President of the Society), and the Treasurer, W. Riddel, in the name of the Society. Mr. Bennett paid a warm compliment to Mr. Bourn for the very efficient, zealous, and punctual manner in which he had discharged the duties of Secretary for the last twenty-one years. In all that time nothing could exceed the very satisfactory manner in which the business of the Society had been conducted, and this testimonial was presented to him, not so much on account of its intrinsic value, but as the most suitable means of giving expression to the regard and esteem in which he was held by the members of the Society. The speaker hoped he would long be able to use the pen in their service, and concluded with best wishes for the welfare of Mr. Bourn and family. Mr. Bourn in reply feelingly acknowledged this mark of approbation from the Society of which he had been elected Secretary for the twenty-second time, and said that while discharging the duties of his office, though his labours had been sometimes arduous, he had felt them less from the deep interest he always took in all agricultural matters; that during his long connection with the Society, he was happy to say he had formed many pleasant acquaintances, and made many sincere and warm friends; but that he had also been called upon to mourn the loss, by death, and removal to other parts of the country, of many active and useful members of the Society; that it would always give him pleasure while he lived to look upon this testimonial just presented to him, and that he trusted it would descend as an heirloom to his family, who, along with himself, would look upon it with feelings of gratification and pride. He concluded with heart-felt thanks for this token of esteem and approval from the Society.

The presentation took place at the North American Hotel, Cobourg, a number of the leading members of the Society being present, also several members of the County Council, which was in session at the time.

Agricultural Meetings—Fall Shows.

In accordance with invitations issued by the Directors of the Darlington Agricultural Society, a meeting of representatives from the various County and Township Societies was held in the Council Chamber, Bowmanville, on Tuesday, 25th January, for the purpose of arranging for the holding of Fall Exhibitions in connection with each of the Societies, in such a manner that the fairs may not clash with one another, as heretofore.

The following Societies were represented: East Durham; Hope; West Durham; South Ontario; Clarke; Darlington; Cartwright; Whitby; Pickering.

The meeting was organized by appointing Mr. N. Choate, chairman, and Mr. R. Windatt, secretary.

The Secretary of the Bowmanville Horticultural Society, W. R. Climie, was requested to take part in the proceedings.

The holding of County Fairs was first considered, and the following days selected:

South Ontario—First Tuesday and Wednesday of week following the Provincial Exhibition week.

West Durham—Thursday and Friday of same week as Ontario show.

East Durham—Tuesday and Wednesday of second week following Provincial Exhibition week.

The days for Township Fairs were fixed on as follows:—Pickering and Clarke on the Thursday and Friday of second week following Provincial Exhibition; and Cartwright on Thursday of same week.

Whitby and Hope on the Tuesday and Wednesday of third week as above; and Darlington on Thursday and Friday of same week.

The Secretary was instructed to communicate to the Markham and North Ontario Agricultural Societies the above arrangement, and request them to fix the days for their shows so as not to interfere with the decision arrived at by delegates.

The question of the appointment of Judges for the several fairs was next considered; and after some little discussion, the following resolution, moved by Mr. Foote, seconded by Mr. Bickell, was unanimously adopted:—

That, in the opinion of this meeting, the best mode of securing judges will be, for each of the Boards of Directors to apply to their neighbouring society to send as many judges as they may require at their respective exhibitions—the travelling expenses to be paid by the societies receiving the said judges.

COUNCIL OF THE AGRICULTURAL ASSOCIATION.—The four members of the Council who retired in rotation have all been re-elected with the exception of the late President, in whose place Mr. James E. Farley, of Thurlow, has been chosen by the Agricultural Societies of the division formerly represented by Mr. Mallory. The contest, we understand, was very close, and the majority in favour of the successful candidate a very small one.

Advertisements.

NEW AND BEAUTIFUL
HARDY FLOWERING SHRUB,
DEUTSEIA CRENATA FLORE PLENO.

THIS very handsome double flowering shrub is a great acquisition. The flowers are white, delicately [illegible] with rose. Worthy of a place in every gentleman's lawn, and every collection of Shrubs. For sale at the St. Catharines Nurseries. 2-2-1t.

FRUIT TREES
OF ALL KINDS FOR SALE AT
The St. Catharines Nurseries.
D. W. BEADLE,
2-2-1t. St. Catharines, Ontario.

ORNAMENTAL TREES
And Evergreens, Flowering Shrubs
AND
CHOICE ROSES
For sale at THE ST. CATHARINES NURSERIES,
v2-2-1t. D. W. BEADLE

TO THE FARMERS OF CANADA.

WILSON, BOWMAN & CO.,
Hamilton, Ont.,
MANUFACTURERS OF THE CELEBRATED

LOCKMAN SEWING MACHINE

TAKE pleasure in announcing that the popularity of the Sewing Machine manufactured by them is still on the increase. They are now turning them out at the rate of 600 per month, and yet have been compelled within the last two weeks to increase their facilities to a capacity of one thousand per month.

The Lockman Machine, from its capacity to sew the heaviest fabrics with linen thread, as well as the finest cambrics with No. 150 cotton, is pre-eminently the FARMER'S FAVORITE FAMILY FRIEND. It is so exceedingly simple in its parts, and so strongly and durably made, that it does not require a mechanical genius for its management.

The manufacturers challenge the world to produce its equal, and yet its price is from FORTY TO FIFTY PER CENT LOWER than that of any other First Class Lock Stitch Sewing Machine.

Every Machine is warranted by the manufacturers, who are determined that no inferior machine shall leave their premises. Parties purchasing to sell again, can obtain liberal terms by addressing the manufacturers.

WILSON, BOWMAN & CO.
Hamilton, Ontario. 3-1t.

1870.
NEW AND GENUINE SEEDS
Messrs. JOHN A. BRUCE & CO.,
Seed Merchants & Nurserymen
HAMILTON, ONT.

NEW & CHOICE VEGETABLE SEEDS.

	Per Packet.
Beans—Carter's Champion Scarlet Runner, very large pods	20c.
Cabbage—Little Pixie, the earliest variety	10
" Schweinfurt Quintal, early, very large heads	10
Cauliflower—Extra Early	25
" Demi-Dur, large, fine heading variety.	10
" Lenormand's, late sort, extra large and fine	25
Celery—The Prince of Wales, Dwarf White, new and extra fine	50
" Incomparable Dwarf White, a very fine variety	10
" Carter's Dwarf Crimson, the best red variety	25
Lettuce—Bruce's Nonpareil Cabbage, the largest and best	10
" Boston Curled, early and very beautiful.	10
Melon—Extra Green Nutmeg, most exquisite flavor	10
" Long Persian, green flesh, very superior.	10
Radish—French breakfast, early and very tender	10
" Scarlet Olive Shaped, fine for forcing	10
Tomato—Bruce's Extra Early Apple, the earliest and best	10
" General Grant, a very early and superior variety	10
" Keys' Early Prolific, very productive, solid and fine	10

On receipt of *Two Dollars and Fifty Cents* we will send Free by mail, to any part of the Dominion, the above collection of new and choice seeds.

CHOICE SEED POTATOES.

Early Rose—Per peck, $1.00; half bushel, $1.50; one bushel, $2.50; one barrel, $5; five barrels, $20.

Early Goodrich—Per barrel, $3; five barrels, $12.20; and other choice varieties. *See Catalogue for full particulars.*

NEW AND CHOICE FLOWER SEEDS.

	Per Packet.
Calceolaria—James' International Prize	$1 00
" Dobson's Prize	50
Cineraria—Very Choice Mixed	50
Pansy—Bruce's Premium, extra good	50
Primula Sinensis—Rose tinge, rose with white, Fimbriata, very fine	25
Verbena—Saved from a large collection, extra good	25
Carnation—Rose leaved, extra fine	50
" Perpetual Flowering, extra fine	50

Jno. A. Bruce & Co's Descriptive Catalogue of Nursery Productions for 1870, is now ready, and will be sent Post Free on application.

Hamilton, March, 1870. 3-1t

TORONTO NURSERIES.
George Leslie & Sons, Proprietors.

We ask the attention of purchasers to our full stock of
FRUIT TREES,
Of all kinds; SMALL FRUITS, bushes and plants; Ornamental, Deciduous and Evergreen Trees; Flowering Shrubs; Climbing, Moss and Perpetual Roses; 100 varieties best Dahlia Roots; Hedge Plants; Herbaceous Plants, &c., &c. The Stock is grown with a view to *suitability to the climate of Canada.*

Packing done in the best manner to insure safe carriage. Orders by post will receive same attention as if purchasers were personally present.

Priced Descriptive Catalogue, new edition, sent to applicants enclosing two cent stamps for postage.

Address all orders and letters of inquiry, post-paid, to GEO. LESLIE & SONS, Leslie P. O., Ont.

N. B.—A splendid stock of Bedding Plants very cheap. 3-3t.

TO FRUIT GROWERS.

FOR SALE, a valuable Farm of 50 acres, with large plantations of fruit. Good house and out-buildings, two miles from St. Catharines, in the midst of the finest fruit growing region in Canada.

For further particulars address P. O. Box 68 St. Catharines; or Box 1372 Toronto P. O. 3-3t

MILLER'S TICK DESTROYER.

MILLER'S TICK DESTROYER.

MILLER'S TICK DESTROYER.

FARMERS are recommended to give this valuable preparation a fair trial, as in eradicating all affections of the skin to which Sheep are subject. It operates promptly and effectually in destroying Ticks and other vermin pests, as no Sheep-owner should be without it. As a certain cure it has hitherto proved infallible.

Other Dips may kill all vermin seemingly alive, but on examination after a short time, will be found to be as full of Vermin as ever. The Tick Destroyer penetrates to the Vermin in all grades of development, extinguishing both hatched and unhatched life.

v2-1-4t HUGH MILLER & CO., Proprietors, Toronto.

NOTICE.

The East Riding

OF THE

COUNTY OF NORTHUMBERLAND

AGRICULTURAL SOCIETY.

WILL OFFER A

Prize of $75 for the Best Stallion for general purposes exhibited at the Society's Spring Show of Stallions, to be held in the

VILLAGE of CASTLETON,

Wednesday, 20th April, 1870.

THE above prize is open to any Stallion in the Province, without any entrance fee. The owner of the Stallion that is awarded the above prize shall be bound to travel him, in and through each Township in the Riding, making at least one overnight stand in each Township, during the season of 1870.

The above prize will not be awarded to any Stallion, unless the same is considered worthy by the Judges.

By order,

R. P. HURLBUT,

Sec'y's Office, Warkworth, Secretary.
Feb. 21, 1870. 3-1t

Important to Farmers.

CROPS ripened from ten to fifteen days earlier, and yield increased 100 per cent. by using

Lamb's Super-phosphate of Lime,	$40.00 per ton.
Fine Bone Dust,	27.00
Half-inch Bone Dust,	22.00

Cash to accompany all orders.

PETER R. LAMB & CO.,
3-3t Toronto.

FREE BY MAIL

My new Descriptive Catalogue of Small Fruits.

ALL the best varieties Strawberries, Raspberries, Blackberries, Grapes, Vines, &c. Given. Instructions for planting. Plants sent by mail free of U. S. postage. M. M. WILSON, Macedon, N.Y. 3-1t

IMPROVE YOUR SEED.

Genuine Imported Hungarian Seed Grains.

THESE seeds are carefully selected and warranted to be as represented:

	Last year. per bush.	peck.	quart.
Wheat.....	$4.00	$2.00	$1.00
Rye.....	3.50	1.75	1.00
Oats.....	3.00	2.00	1.00

SAVE YOUR SEED FROM VERMIN AND BIRDS.

LABELLE'S PATENT IMPROVED MODE OF PRESERVING SEEDS. This patent powder protects all kinds of seeds from vermin, and birds, and fertilizes after planting, and costs $2 per pound, which is sufficient for 2 bushels of Seed. State, County and Town rights for sale.

Sent by Express to all parts of the country on receipt of price. Send for circular, containing valuable information to farmers.

AARON MASKER,
3-3t Perth, Amboy, N. J.

Grape Vines.

STRONG, well-grown, one year old vines of *Allen's Hybrid, Isaac, Isabella, Rogers' Hybrids, Nos. 15 and 19, Issac Keeling, Mary, Delaware, Concord, and Miles*, 25c. each, $2.50 per dozen, $20 per hundred. *Salem*, the best of Rogers' Hybrids, 50c. each, $5 per dozen. *Isabella* and *Clinton*, three years old, 20c. each, $2 per dozen.

JOHN FORSYTH,
3-1t* Box 1135, Toronto P. O.

RASPBERRY PLANTS.

THE subscriber has for sale a choice stock of the Doolittle, Mackeage and Lawton Blackberries, which he offers at seventy-five cents per dozen, mailed free of charge. Cash orders mailed in rotation. E. H. CRYSLER, Harrisonville, Ont.

N.B.—I have Wilson's Early and Kittatinny's, which will be for sale next spring. 3-2t

50 barrels Early Rose Potatoes to be given away.

FOR $3 I will forward to any address 2 lbs. Vandevere, 2 lbs. Harrison, 1 lb. Climax, and 1 bbl. (165 lbs.) Early Rose Potatoes. Last year, the Harrison sold for $4, Vandevere $1, and Climax $6 per pound, and are well worth all I ask for the whole. The Early Rose were awarded a first prize last year at the Provincial Fair.

Address H. M. THOMAS, Brooklin, Ont. 3-1t

WINDSOR NURSERIES.

A FINE stock of Fruit Trees, &c., for Spring planting, more particularly in

Dwarf Pears, Dwarf Apples, Vines, &c.

Intending purchasers should send at once for Catalogues, which will be sent free. Also for the "CANADIAN FRUIT CULTURIST," mailed free for 20 cents.

Address JAMES DOUGALL,
3-1t Windsor, Ont.

AYLESBURY DUCK EGGS.

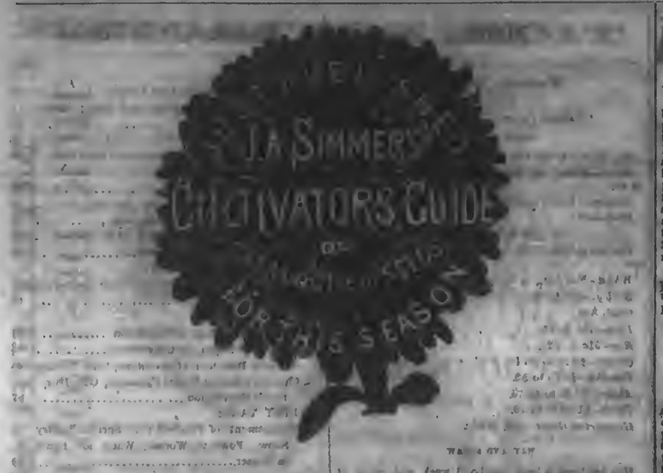
FOR Sale in spring, a limited number of Aylesbury Duck Eggs, warranted pure. Orders received now. Price $2 per dozen.

JOHN FORSYTH,
3-1t* Box 1135 Toronto P. O.

SEED POTATOES.

EARLY GOODRICH, early and prolific, $2.50 per barrel. HARRISON, the best and most prolific late potato, $2.50 per barrel. All warranted pure.

JOHN FORSYTH,
3-1t* Box 1135 Toronto P. O.



THE BEST AND MOST COMPLETE PUBLICATION OF THE KIND IN THE WHOLE DOMINION.

AND THE QUALITY OF THE SEEDS OFFERED BY THE PUBLISHER ARE ADMITTED BY ALL AS UNSURPASSED.

Send a three cent stamp for a copy, to

J. A. SIMMERS,
Seed Merchant and Florist,
Toronto, Ontario.
3-2t

STALLIONS FOR SALE.

THE thorough-bred Kentucky stallion, "The Raven," rising 6 years; color, dark brown; sired by "Falcon," he by "Lexington;" pedigree furnished in full. He is the best weight carrying horse in Canada, and has proved a good game horse at all distances. Price $1,200. Also the trotting Stallion "Fearnaught," rising 5 years, blood bay, black points, sired by "Royal George." He is 16 hands high, and a horse of great power and fine action. Has not been trained, yet can show a mile in 3 minutes. Price $1,000.

Apply to J. MACKELCAN, CANADA FARMER Office, Toronto.

They can be seen at J. Grand's Royal Horse Bazaar, Wellington St., Toronto. 3-1t

American Bee Journal.

ON account of the fall in gold, parties ordering the "American Bee Journal" will require to send after this date $1.75, instead of $1.50 as heretofore.

J. H. THOMAS,
3-1t..... Agent.

AYRSHIRE CATTLE.

FOR SALE, Ayrshire bulls, "Avondale Farmer," 3 years, and "St. Andrew" 20 months, both imported from Scotland. They took 1st and 2nd prizes at the Provincial Exhibition last year. Price $200 each. Also an entire herd of Ayrshires, comprising 15 females—4 of them being imported from Scotland—and some calves. Apply to J. MACKELCAN, CANADA FARMER, Toronto. 3-1t

NEW AND RARE VEGETABLES.

I MAKE the seed of New and Rare Vegetables a specialty, besides growing all the standard kinds. Catalogues gratis to all.

JAMES J. H. GREGORY,
2-2t Marblehead, Mass.

VINEGAR.

HOW MADE FROM CIDER, WINE, Molasses or Sorghum in 10 hours, without using drugs. For circulars, address F. I. HAGE, Vinegar Maker, Cromwell, Conn. v2-1-6t.

THE BEST THING OUT.

Clarke's Patent Two-horse

IRON FIELD CULTIVATOR,

Was awarded the First Prize over all other competitors at the late Provincial Fair, and at nearly every other exhibition where shown, and universally acknowledged to be the best implement in use.

For County and Township rights to manufacture for sale, apply to

THOMAS CLARKE, Proprietor,
Hamilton,
Or to T. O. STONEHOUSE,
2-2t Travelling Agent.

CHOICE GARDEN AND FLOWER SEEDS.

MY ANNUAL CATALOGUE, containing a list of many novelties, besides all the standard vegetables of the garden, (*over 100 of which are of my own growing*), with a choice List of Flower Seed, will be forwarded *gratis* to all. I warrant my seed shall prove as represented. I warrant it shall reach each purchaser. I warrant all money forwarded shall reach me. Send for a Catalogue.

JAMES J. H. GREGORY,
2-2t MARBLEHEAD, MASS.

SEED POTATOES.

THE subscriber offers for sale the following justly celebrated varieties of potatoes:—Early Rose, $5 per barrel, 165 lbs; Harrison, $3 per barrel, 165 lbs; Early Goodrich, $2 per barrel, 165 lbs. Delivered to Great Western Railway, at Hamilton, and warranted pure and true to name. Orders accompanied with the cash booked in rotation, and filled in the spring as soon as the weather will permit. Address, LEWIS BRIGDEN, Hamilton, Ont. 2-3t

BEE-KEEPERS in Canada may rest assured that J. H. Thomas' Prize Bee Hives are the best made in America, they are cheap, durable, and perfect. Last [illegible] from Nova Scotia, and from [illegible] the demand is increasing yearly. Since they were brought before the public a number of other hives have been brought forward, many of which are entirely worthless; some are good; but not one possesses as many advantages as the Thomas Hive, nor is any so simple in construction. In a word, as a Bee-hive, it is unsurpassed. Send in your orders, always accompanied with the money, and they will receive prompt attention.

Single Rights [illegible] following prices Single and Double Rights to make and use both Double and Single Boarded Hives, with a full printed description thereof:—

Single-Boarded Hive	$5
Double-Boarded Hive	6
Single-Boarded Observing Hive, Glass in 1 side	6
" " " 2 sides	7
Double-Boarded Observing Hive, Glass in 1 side	7
" " " 2 sides	8

All persons purchasing a Hive at above rates, which always includes the right to make, and preferring to order Hives from [illegible] rather than make, will be supplied at the following rates:—Double-Boarded, $3 50; Single-Boarded, $2 50; or, if ordered in lots of three, to one address, Double-Boarded, $3 25; Single-Boarded, $2 25; in lots of six, Double-Boarded, $3; Single-Boarded, $2. Individual rights, without the Hive, $2. Hives sent safely, as freight, by rail to any part of Canada. Three Hives sent to one address for the same freight as one Hive. Bee-keepers would do well to form clubs, and order three or more Hives sent to one address, and thereby save freight.

Hives at the above rates are made with one honey-box. Persons ordering Hives made with two honey-boxes, must send 25c. more for each Hive; with three honey-boxes, 50c. more for each Hive.

"THE CANADIAN BEE-KEEPER'S GUIDE" always on hand. No Bee-keeper should be without it. Price, post-paid, 25c. To parties wishing to purchase territory, I make this offer—Any person sending me ten orders for the Single-Boarded Hive, at $5 each, from any one Township, will receive in return the ten Hives to fill his orders, and the right of the Township for himself. Now is your chance.

H. THOMAS,
v2-14t Brooklin, Ont.

GREAT REVOLUTION IN BARN BUILDING. Cheap and Handing of all kinds of Grain, accomplished by John Dennis' Patent Invention of 1869, by which the following advantages are obtained. Firstly—Barns can be built on this system for less than half the cost on the old plan. Secondly—One man and a horse, with the patent Lobo Annihilator, can unload more hay or grain in five minutes than five men can in half an hour. Thirdly—These barns are [illegible] for a number to build in, by hand, hay-forks, or Lobo Annihilator. Amount of timber and lumber reduced to board measure to build barns of the following capacity:—For a barn, 32x50, 11,000 feet; 3 barns, 30x50, 47,000 feet; for 1 barn, 50x50 feet, and two sheds, 20x50 feet each, with side walls 24 feet high, and roof half-pitch, 20,000 feet for the three buildings; time to frame first barn, 3 men, 11 days; second, 3½ do., and for the large barn and two sheds, less than 5 days. Let no man in the Dominion get out timber for a barn without first coming to Newmarket, County of York, (which will not cost much) and see one of these barns with the two sheds attached, and with the unloading machinery in full operation; he can judge for himself, and after seeing it, if he does not say that it is the best and cheapest barn he has ever seen, I will pay his fare home. Carpenters who are now building barns should secure rights at once, as after these barns are seen no other kind of barns will be put up, for two reasons—they are cheaper and better.

Address JOHN DENNIS, Patentee,
v2-1-4t Newmarket, Ont.

TO STOCK BREEDERS AND AGRICULTURAL SOCIETIES.

I INTEND to keep a Register Book in which to enter all Thoroughbred Stock for sale, and to purchase or sell on commission, and as my personal attention will be given to selection, I trust to be favored with orders from those wishing Pure Stock. Address

J. MACKELCAN,
CANADA FARMER, Toronto, Ont.

N.B.—I have some 20 YOUNG SHORT-HORN BULLS of recorded pedigree for sale.

DOMINION OF CANADA

V. R.

EMIGRATION
TO THE
PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,
DAY LABOURERS,

And all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy and Stock a Freehold Estate with the money needed to carry on a small farm in Britain. Good cleared land, with a dwelling and good barn and outhouses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. Farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants, by the Government, is

A FREE GRANT OF LAND
(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain, on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are not liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of labourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz.: Wm. Dixon, 11 Adam Street, Adelphi, London, W. C.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and E. Simays, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; Jas. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; E. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Brunswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. 2-12t.

Markets.

Toronto Markets.

"CANADA FARMER" OFFICE, March 14, 1870.

FLOUR.

The Market is quiet at [illegible]
Flour—Extra, $4, Fancy [illegible] $3 60.
Oatmeal—$3.62 to $3.75.
Bran—$9.

GRAIN AND SEED.

The transactions in grain are few, and rates continued low.
Wheat—Fall 86c., to 88c.; Spring, 82c. to 83c.
Barley—45c. to 60c.
Oats—34c.
Peas—53c. to 57c.
Rye—51c. to 52c.
Clover—$6.25 to $6 40.
Timothy—$2.75 to $3.
Alsike—$6.25 to $6.75.
Tares—$1.50 to $1.70.
Hungarian Grass—45c. to 55c.

HAY AND STRAW.

Hay has been in large supply all week, and selling at $6 to $8 for inferior, $9 to $11 for fine quality.
Straw—The supply and demand have been about equal; $4 to $4.50 being about the range of price.

PROVISIONS.

Pork—Mess, $23.50 to $24.
Bacon—Cumberland cut, 10¼c. to 10¾c.
Hams—13c. to 15c.
Lard—13¼c. to 14c.
Butter—Packed, 16¼c. to 17½c., Rolls, 20c. to 24c.
Cheese—13¾c. to 14¼c.
Eggs—15c. to 20c.
Salt—Goderich, $1.55; American, $1.85. Liverpool Salt, per bag, 35c. to 87½c.
Dressed Hogs—$7.75 to $8.20.
Potatoes—30c. to 35c.
Geese—50c. to 70c.
Turkeys—$1 to $1.50.
Chickens—per pair, 50c. to 75c.

CATTLE MARKET.

There has been a good business done at steady, and in some instances, advanced prices.
Beeves—From $5 to $6.
Sheep—Scarce and in good demand at from $3 to $5.
Lambs—From $2 to $5.
Calves—From $4 to $12.
Hides—5¾c. to 6¼c.
Calfskins—10c. to 12c.
Sheepskins—75c. to $1.40.
Wool—23c. to 25c.

New York.—*Flour*—Steady; receipts 6,000 bbls.; sales 7,000 bbls at $4 75 to $4 90 for Superfine State and Western; $5 05 to $5 85 for common to choice Extra State; $5 to $6 for common to choice Extra Western. *Rye Flour*, Firmer at $4.40 to $5.50. *Wheat*, without decided change in price; receipts 12,000 bush.; sale 16,000 bush. at $1.60 to $1.70 for choice white State. *Corn*, firm; receipts 4,000 bush.; sales 10,000 bush. at 92c. to 95c. for new mixed Western. *Barley*, Dull; sales 2,000 bush Canada West at $1.12. *Oats*, quiet; receipts 10,000 bush.; sales 16,000 bush. at 55c. to 56½c. for Western. *Pork*, firmer at $26 to $26.25 for new mess. *Lard*, Heavy at 14¾c. for steam, and 15¾c. for kettle rendered. *Butter* steady at 14c. to 26c. for Ohio; 26c. to 46c. for State. *Cheese*, Dull at 10c. to 13c. for common to prime.

PROVINCIAL MARKETS.

Montreal.—*Flour*—Extra, $4.40 to $4.45; Fancy $4.20 to $4.25; Bag flour, 100 lbs., $1.80. *Wheat*, Canada fall, 90c. to 96c.; Spring, 90c. to 92½c. *Oats*, per 32 lbs., 25c. to 27c. *Barley*, per 48 lbs., 40c. to 45c. *Butter*, dairy, 17c. to 18c. *Pork*, Mess, $23 75 to $24; *Dressed Hogs*, $6 50 to $6 75. *Peas*, per 66 lbs. 70c.

Collingwood.—There is very little alteration in our market prices this week. Spring wheat 68c. to 72c.; fall wheat 70c. to 74c.; *Barley* 35c. to 38c.; *Oats*, 25c.; *Peas*, 40c. to 42c.; *Pork*, $5 to $7.50; *Butter*, 16c.; *Eggs*, 13c. to 14c.; *Potatoes*, 25c. to 28c.

Contents of this Number.

PAGE.

[illegible]: Beet Culture 81
[illegible]: Hedges and Mice; Science 83
[illegible]: Roots; Stocking Pastures 85
[illegible]: Birds from Seed Corn .. 86
[illegible] 86
The [illegible] Farms; Breeding Cows... 87
[illegible] (with Illustration)..... 88
[illegible]; Cut Feed for Horses.... 89
[illegible] Calves 90
VETERINARY:
Navicular Disease; Horse's Foot; Staggers in Pigs 90
THE DAIRY:
Canadian Dairymen's Convention 91
American Dairymen's Convention 94
Vermont Dairymen's Convention; Dairy Meeting 96
Cheese Factories; Butter Factories; Ohio Dairymen's Convention..... 97
POULTRY YARD:
Management of Pea-fowl; A Spring Poultry Show; Fowls vs. Worms; Water for Fowls in Winter..... 98
CORRESPONDENCE:
Steam Cultivation for Canada..... 98
Economy of Time; The Engineer on the Farm 99
Broom Corn..... 100
EDITORIAL:
Agriculture and Arts in 1869..... 100
Agricultural Societies; Farm Labour..... 101
Emigration to Canada; Returning Emigrants .. 102
Notes on the Weather..... 103
HORTICULTURE:
Fruit Growers' Association of Ontario—Winter Meeting 103
Meeting of Grape Growers; Report of the F. G. Association for 1869; Does Nature Economise her Forces?..... 106
Hybridising Pelargoniums..... 107
Toronto Horticultural Society; Orchard Wind Breaks; Toads vs. Bugs..... 108
Diseased Apple Trees; Northern Spy, Apple; When Apple Trees Bear Fruit; Fruit Growing in Kent..... 109
POETRY:
The Stream that Hurries by; Three Roses; Departed Days..... 110
HOUSEHOLD:
Catching Rats; To Clean Old Musty Barrels; Paste that will keep..... 110
ENTOMOLOGY:
Cabbage Butterflies (with cut)..... 111
Carrion Beetles (with cut)..... 112
"New Species" of Insects; Currant Worm Parasite 113
APIARY:
Bees—Their Nature and Habits..... 114
AGRICULTURAL INTELLIGENCE:
Board of Agriculture 115
Testimonial 116
Agricultural Meeting—Fall Shows..... 117

THE CANADA FARMER is printed and published on the 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (POSTAGE FREE) payable in advance.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are to be addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

THE CANADA FARMER.

VOL. II. No. 4. TORONTO, CANADA, APRIL 15, 1870. NEW SERIES.

The Field.

Early Spring Work.

Although March but lately held stormy sway, the busy time of the tiller of the soil is already upon him, and as work well begun is easiest finished, it will be well for him to make his preparations as early as possible. While the weather is still unsuitable for out of door operations, and the Frost King holds fast his grip, much can be done in the barn.

SELECTING AND CLEANING SEED should now be attended to. We have before spoken of the importance of having only the best seed to sow. Let everything intended to be used for this purpose be selected and cleaned with scrupulous care, every light seed and foul weed being driven out. The fanning mill is not used half as much as it should be, and too often the work is delayed so long that when the time comes it is but half done. Let a calculation be made of the exact quantity of grain or grass seed required for every field to be sown, and the quantity made up only of what has been carefully run through the fanning mill, and if necessary hand sifted, and put up in bags and labelled to show what field it is to go to. Then when the time comes for seeding, there will be no confusion and loss of time about the matter. This done, attention must next be given to the

IMPLEMENTS.—The ploughs, harrows, cultivators, &c., should get a good overhauling to see that they are all in proper order, and if necessary any repairs made. Brighten up the mould-boards of the ploughs with sand and water, and give a coat of crude petroleum to the woodwork, to prevent the rain from soaking in. See that all the clevises, whiffletrees, trace-chains, and other small things so often needed when work commences, are in good order, and put together in a place where they can be easily found when wanted. Have the harnesses all made sound and tight, and let them be well oiled.

MANURE.—Anything intended to be used as a portable manure, such as land plaster, bone dust, salt, etc., should be stowed away in the barn, or some outbuilding proof against wet, to be ready on hand when the time comes for its use.

As soon as the spring thaw sets in, and while the land is yet too wet to be worked, is the time to get the barn-yard in order. Have all the manure made during the winter forked over, and thrown or drawn into a covered shed, or if that is not to be had, into large heaps round the sides of the yard, so as to leave a clear space in the centre, and the stables, byres, etc., free from foul obstructions. The heaps should be so made as to be high, and with perpendicular sides, to prevent the stock getting on them. As they are made, it will be well to throw six inch layers of muck, or even loam earth, about each two feet thickness of the manure heap. The whole can then be covered with the scrapings of the bottom of the yard. When that is done, cover the whole centre of the yard with a fresh layer of muck or earth, to absorb urine and the washings from the manure heaps, and that again with clean straw, so that the stock can enjoy cleanliness and comfort out of doors when the mild days come, and confinement gets irksome, just before grass is ready. This last layer will help to make manure for the fall, or the late sown turnips.

PEAS are usually the first crop sown. See that your seed is free from bugs. If not, it is much reduced in value, though many of the germs may still remain, but they will produce little, weak, spindling plants. Get the best and most productive kinds, such as the "Crown" or "Daniel O'Rourke." Even if it should cost more for seed, an extra fifteen or twenty bushels per acre will much more than pay for an increase of double in the price of the seed. This crop is always a paying one.

SPRING WHEAT comes next in order. A good deal will be grown, notwithstanding the low price at which it sells. Indications point to a serious loss from winter-killing in the autumn sown wheat this year, and it would not be well to leave the country with a short supply of the "staff of life." Be sure to brine or lime the seed to prevent smut. Let the land be made deep and mellow.

BARLEY.—The failure to realize good prices on last year's crop, resulting from lack of quality, will, no doubt, discourage many, and those who do grow the crop this year will reap the benefit of higher prices next Fall. This crop requires a rich warm soil rather than a deep one, and the more its roots can spread near the surface, and yet find plenty of food, the better will it succeed. Still, barn-yard manure is seldom good for it, unless old and very finely composted. It is better applied to the soil through the previous crop, in roots, potatoes, or corn, or, as is done by some first class growers, thoroughly incorporated into the soil early in the autumn. Barley should not be sown too early, in fact, not till the weather has become settled and warm, and the soil acquired a temperature sufficient to ensure rapid germination of the seed, and a quick, steady growth of the plant after germination takes place. The shorter the time it occupies the ground the better will the crop be likely to prove. Superphosphate or very fine bone dust is a most excellent and profitable manure to apply to barley, say at the rate of 100 lbs. per acre if drilled in with the seed, or 200 lbs. per acre if sown broadcast.

Oats.—There is much to be made on this crop, especially by the class of farmers who sell by measure, have their lands overrun with thistles, and wish to propagate them by growing a late ripening crop. Of late much interest is being taken in the matter of introducing new varieties of this grain, supposed to be of more productive quality than the old sorts, but notwithstanding the stories told by interested parties of the large yields given by some of the new kinds, as the Surprise, Norway, Excelsior, and others, we have doubts if any of them are better even in this respect than some of the old sorts, while some of them, at best, are of very light weight in proportion to their bulk. Oats are a crop always sure to give large returns on good soils with proper culture—things seldom accorded them.

Potatoes will probably not be grown to such an excess as they were last year, resulting in such very low prices. The very early sorts, if grown near the cities and towns, and planted sufficiently early to mature by the end of June or first of July, are most profitable, though rather too troublesome a crop for the better class of large farmers, who will naturally value their time higher than to be peddling out early potatoes in the market. Arrangements might, however, be made to sell the crop in bulk to some enterprising dealer, who will take the trouble of doing the marketing.

Corn.—Those who can grow corn to advantage should not neglect to get their land for it into good condition and fine tilth as early as possible. Good crops, if not the very best, are most certain on a strong stiff sod or clover ley, first heavily spread with barn-yard manure, and then ploughed under somewhat shallowly, say 4 to 6 inches, and planted to corn not later than the 24th of May. Corn requires at least 100 days from the time of planting to fully ripen, under favourable circumstances, and it is most desirable to select varieties that will ripen in that time if possible. By care in selecting the earliest ripening ears each season, and planting only the seed from them, there is no doubt something might be done towards obtaining earlier maturity in this crop.

Clover and Grasses.—Clover seed is scarce and expensive, yet it will be poor policy to neglect sowing, or to give but a thin seeding, on that account. The most of failures to get a stand we think due partly to want of using enough good sound seed, but also greatly to the want of having the land in good tilth, and neglect to cover the seed when sown. Barley is undoubtedly the best crop on which to sow clover, as the land given to this crop is usually the cleanest, richest, and best prepared of any. Sow the seed immediately after the last harrowing in of the barley, and cover by dragging once over the surface, crosswise of the last harrowing, a bush harrow made of the tops of some trees, bound together at one end, and spreading out at the other; a slight chain and whiffletree is attached, and one horse does the work. This plan will cover the seed lightly, which is all that is needed. A smart rain coming on immediately after the clover seed is sown will often cover it enough, if the soil is friable and in good tilth. If it is desired to make a strong wheat soil into meadow land, timothy alone, or with very little clover, is best, and it can then be sown either on winter wheat immediately after, or just when the snow melts, or on a spring crop of grain directly after seeding. No artificial covering is needed for timothy. For permanent pasturage to be used for stock, we would much prefer leaving out both timothy and red clover, and sowing a mixture of several kinds of grass seeds, with the addition of some five or six pounds per acre of the *small* Alsike clover. In this case the grass seed must either be sown on a barley crop, or on land specially prepared exclusively for the purpose, and be covered in with the harrow.

Stock must now be well looked after, and have some roots, in order to prepare them for turning to grass when it is ready, and so prevent scouring. The horses must be kept on dry provender, and in solid condition, to enable them to stand the hard spring work. Cows should not be allowed to roam about the yards, except for two or three hours a day when dry, nor sheep to get drenched in rain storms. Sheep generally get the first to grass, cattle after, and horses not till their work-days are over. Do not be in too much of a hurry to get the spring ploughing done, and so keep men and horses at work in the rain; and especially avoid turning over the soil when it is so wet as to pack as it leaves the mould-board.

Science and Farming.

In a late article under the head of "What has science done for the farm?" a short history, or rather a very brief sketch, was given of the way in which phosphatic manures came to be introduced into England. Things are not yet arrived at that state in Canadian farming when more than a slight sketch is admissable on these subjects. Matters are progressing, however; crops are failing, assistance to the farmer is demanded, and assistance can only be had through the aid of science.

While the search after phosphates was progressing, until not only the shingles, and ancient deposits of bones, but even the old battle fields, were diligently searched and rifled of their contents, and all ground up and converted into superphosphate, or simple bone dust, science had shown that there were other sources of ammonia to be found than the guano islands. The liquids resulting from the distillations of gas works were found to be specially rich in this substance, and the conversion of these liquids into ammonia, in one shape or another, now forms an immense business throughout the civilized world, wherever gas is used as a means of light.

The immense plains in different parts of the world which yield nitrate of soda, and also the various sources of nitrate of potash, were most industriously laid under contribution. The waste of every animal production was equally searched for and husbanded; old cloth and woollen goods gone too far for the shoddy mill; the refuse of the shoddy mill itself; the remains and refuse of slaughter houses; enormous quantities of the refuse of fish after the extraction of the oil; every animal substance which by the aid of chemicals could be put into such a state as to be concentrated and conveyed, as an article of merchandise, from one point to another; all are now utilized, and by scientific aid are converted to the use of the British and European farmer. But the mainstay and aid to the manufacturer of chemical manures has been sulphuric acid; this, from its solvent action and powerful affinities, and from its cheapness, is employed on every occasion, and the sulphur which was formerly used chiefly for the manufacture of gunpowder, and the destruction of human life in war, is now the beneficent agent from which the present fertility of England is obtained.

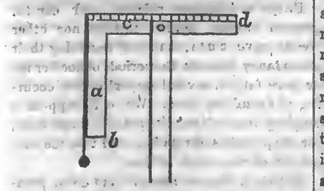
Fifty years ago, sulphuric acid was an expensive chemical agent, useable only for special chemical purposes, and considered cheap at ten times its present price. Now, it is an object of every-day use, not only in the chemical laboratory, but in all manufactories, and on many farms, and the home manufacture of superphosphates is now very common in Britain. Indeed, no modern farm of any pretension is to be found where its use is unknown. It was at one time manipulated by chemists only, and even by them with dread. Now it is used on a large scale by men only one degree above common labourers, and by its potent aid matters are unlocked from stony substances totally inert in their natural state, but which afford the highest possible assistance to the farm when separated and rendered soluble. Formerly the only source of potash was the ashes of burnt wood; now the feldspar which is so plenty in some forms, and indeed in most forms of granite rock, is profitably used to obtain potash manures. Almost all the soda of commerce is obtained by the action of sulphuric acid on common salt, and the latter in its various modifications now enters largely into the formation of chemical manures. Salt and lime mixed together and turned over for three months form the most active substance known for reducing vegetable matters and farm-yard manures into the substance usually known as "rotten dung." These matters, when mixed with lime and salt so prepared, decay in one-fourth of the time they would otherwise take to fall into the most profitable shape as manure; and the action of these chemicals does not cause a loss of ammonia, or other fertilizing salts, to any serious extent.

Science has also pointed out to the farmer the benefits of liquid over solid manure; the necessity of keeping our heaps and reservoirs of manure from the leaching action of the rains; the reasons for the necessity of rotation of crops; and, indeed, it may be fairly claimed for science, that, through its aid, the average production of grain per acre throughout Great Britain has doubled itself within the last twenty years. VECTIS.

Practical Drainage

BY ALAN MACDOUGALL, C.E.

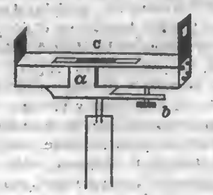
The next step towards a scientific instrument for obtaining levels is somewhat similar to the one mentioned before. Instead of having the head fastened on like a T, it has a square fastened on, with a plumb-bob attached to the perpendicular



arm. The square may either be fastened on firmly, or have a thumb-screw to allow of its being loosened or tightened, as may be required. The plumb-bob is made to hang down the side of the arm *a* in the same way as it hangs on the centre line of the T, and when it just touches the arm *a*, the other arm c is level. Some persons use this square with the arm graduated to inches, then by throwing it slightly off the level, a grade is obtained. For example, if the arm c were thrown a quarter of an inch off the level, and its length were 24 inches, then a quarter of an inch on 24 gives one inch in 96, or a grade of 1 in 96. This needs very careful handling and calculation, and for this purpose the arms must be of the same length, so that whatever distance is required to be laid off can be accurately measured. If not, and the arm *a* were 12 inches long, while the arm c were 24, let the point *b* be shifted a quarter of an inch, the point *d* will move through *twice* that distance, so that instead of obtaining a grade of 1 in 96, the grade obtained will be 1 in 48.

If it be desired to use this square and bob for laying out grades, the upright must be firmly set in the ground, and after the grade has been laid out, the arms must not be touched, in case any derangement to the grade takes place. It will answer pretty well on a perfectly calm day, but if there be any wind to sway the plummet about, then this method of laying out a grade is not very practicable.

Considerable accuracy in levelling can be obtained in the use of the undermentioned instrument. It is often used in levelling long distances for drains. It works with sufficient accuracy to be recommended as the nearest approach to an engineer's level that it is necessary for



a drainer to have. It consists of an ordinary spirit level, having an eye-sight raised above each end. At one end the sight is higher than the other, and is furnished with a piece of stained glass, or some other material of the same height as the other sight. The level is made to fit into a brass frame *a*, which acts as a spring to adjust it to the level position *c*, by means of a large-headed screw *b*. A stud, projecting from this frame, is to be firmly pushed into a gimlet hole on the top of a short staff, which is firmly driven into the ground. When not in use, the level can be carried in the pocket, as it is of no weight, and the staff used as a walking stick. It is preferable to have the frame with the spring attached to the level, for the convenience of carrying it. Even a better method than having the spring *a* and adjusting screw *b* is to have the stud fastened on the bottom of the level and made to fit on a core working on a ball and socket joint, like the working of a surveyor's compass on the "Jacob staff." It is rather more costly perhaps, but makes a more permanent level, and it can be very accurately levelled by the hand.

In every case, the sighting is to be done in the same way, which is similar to that formerly explained in the use of borning rods, the target on the graduated rod is to be moved up or down until it cuts the line of vision, and the difference in heights of the readings on the staff and the height of the level above the ground to be taken, which difference will be the difference of level between any two points.

Tile Drainage.

To the Editor.

Sir,—A circumstance has come under my notice respecting a tile drain, to which I should like to draw your attention, and that of your numerous readers.

The drain leading from the cellar of Mr. F. Coleman, in this neighbourhood, became completely blocked up. On examination, it was found that the fibrous roots of an apple tree, growing some thirty feet from the drain, had entered the crack between the tiles, and had become a mass so solid that the water could not pass. I enclose a portion for your inspection.

The drain was laid three years ago, by a professional hand from England. The tiles were two inch bore, laid four feet deep.

There is an orchard of ten acres in this vicinity, with tile underdrains. It has two main outlets, and in the spring does not run two barrels a day from either outlet.

I have a young orchard to underdrain. With these facts before me, it would be useless to attempt it, unless I can hear where tiles are manufactured with collars, or to connect in some way to prevent one falling below the other, as I find the mice or moles have undermined mine.

I think, in laying a drain around a cellar, elbow tiles would be an advantage, as they require to be close to the wall.

What do you consider the best drain for a cellar? W. T. CROUCH.

Virgil, Jan. 31, 1870

Reply.—The roots look very much like grass roots; probably when the tiles were laid they were covered with turf—a very common practice, and the turf being put on with *roots downward* has caused the mischief. It is highly improbable that a tree in three years could shoot roots down into four feet of depth, when it was thirty feet away from the drain, however wet and soft the subsoil might be. The subsoil must evidently be soft sand (will Mr. Crouch inform us, and also say if the land was wet before it was drained?) which was wet and full of water before draining; in such cases there are frequently grasses that are called subaqueous, which cause a good deal of trouble to the drainer, often requiring a drain to be lifted and relaid after three years. The fault of the ten acre orchard seems to be the same as Mr. Coleman's, but we should like to know more about the condition of the land before draining, subsoil, fall, depth of drains and when laid, and distance apart. Tiles

being *undermined* is something new to us. In the absence of details. we can only say that a further knowledge will probably show that there has been shockingly bad work somewhere. Collars are not required except for wet sands. For the drainage of a house cellar, tight pipes are the best, with spigot and faucet joints, which ought to be rammed hard with strong clay. Elbows can be got for these. For other cellars, where there is plenty of fall for the water, tiles do very well with collars. They ought never to be laid *close* to a wall, but about three feet from it. Elbows are not made for tiles, nor are they required, as tiles can be laid to a small radius.—Ed.

Thistles.

To the Editor.

Sir,—I should like to say something encouraging for your correspondent "Enquirer," if possible. But unless he has overstated his weakness, or has represented himself as being more impatient of difficulties than he really is, I fear I shall not succeed. I have no new method of thistle-killing to suggest; but if I assure him that the old ones may be used effectually, and that he takes a mistaken view of the expense (arising, if he will forgive me for thinking so, from a limited apprehension of the science of agriculture), and then exhort him to firm resolve, patient perseverance, and methodical effort, I may perchance be so happy as to induce him to reconsider the following passages of his letter.

Says "Enquirer," "Recently I went to look at a very beautiful farm, but almost every field was badly infested with thistles;" and again, "If I cannot get a farm without thistles, I shall decline one at all, unless there is a less expensive way of dealing with them than the one 'Vectis' proposes."

My own feeling would be, if a very beautiful farm were offered to me, and I wanted to buy one, that its being infested with thistles would not, *alone*, be an obstacle to the purchase of it. For—assuming that the expression "very beautiful farm" means a farm with great natural advantages, and, perhaps, some other striking qualities—since I could destroy thistles by the ordinary methods of good tillage, but could not so readily find a substitute for natural goodness of quality, I should deem it wiser, on the whole, to buy the beautiful farm, thistles and all, than to trust to the precarious chances of finding *for sale* a good farm without thistles; for the men of Canada, so far as my observation goes, do not think it "smart" to sell farms of any sort while they are in good condition.

Your correspondent objects to "Vectis'" thorough summer fallow, on the score of expense, which he estimates at fifty dollars per ten acres, or five dollars per acre. Why, Sir, that farm which, whether be-thistled or not, is not made to undergo at stated periods some sort of effectual cleansing, must needs fall into very miserable plight, and it is to be feared that few of us can go far from our own homesteads without seeing various degrees of exemplifications of this necessity. Upon the choicest and cleanest land some such treatment is absolutely essential. It is everywhere admitted that these operations are the most expensive of all ordinary agricultural work, and for that reason they are, as we see, either altogether shirked, or very inadequately performed by not a few farmers. Hence, thistles and all the tribes of weeds. Hence, too, ten or fifteen bushels of spring wheat from land which would produce thirty or thirty-five, and twenty bushels of fall wheat from land which, even without general and thorough underdraining, would produce forty or forty-five bushels. In this fallow section of the Canadian farm really lies, after all, the true and most cogent reason why writers in the old country are able, when they have a purpose to serve by it, to almost ridicule our pretensions to living in a grain-growing country, and to speak with contempt of the outcome of our harvests.

The spirit of enterprise, which is not seldom disastrous in other departments of life, might with far greater safety be adopted by farmers who hug the present dollar, or put it out at usurious interest (itself a source of infinite mischief), and lead a dreary life upon their half-tilled farms, uncheered by those hopes of improvement which stir the minds and stimulate the energies of other men; while their sons, discouraged by the prospect, canter off to simper out their lives behind a counter, with a noble country like this around them. How different in England and Scotland, where, to become a farmer, like his father, is the ambition of nearly every boy reared on a farm; to whom an announcement on leaving school that he must now prepare to seek a livelihood in a city, is the shattering of dreams and hopes of entering upon a country life. Happy for Canada when so healthful an ambition shall take possession of her young sons. It is for their fathers to bring that state of things about; there is room for them at home.

SYSTEMATICALLY ENCOUNTERED.

Resuming the subject of the thistle difficulty, I now return to the letter of "Enquirer." Here we have a gentleman, whose letter gives evidence of a good education, hesitating to enter upon a "very beautiful farm,"—no, not hesitating—"declining" to take a good farm because of the thistles.

I am far from believing that bare fallowing is the most profitable treatment within reach, though it is the speediest as regards thistles, and involves the smallest present outlay. I only insist here that no farm can prosper without some such outlay, and that five dollars per acre, if it can be done for such a sum, is a mere bagatelle. I suppose the summer fallow to be, as is most convenient, the first step in a systematic rotation of five, six, or seven years; each crop in the course is supposed to, and really does, profit by it. Divide, then, five dollars by five, six, or seven or by whatever number of years may constitute your course, and see how insignificant is the charge per annum per acre, as compared with benefit accruing.

So much for the summer (or bare) fallow. But supposing that for a bare fallow hoed-crops of Indian corn and roots be substituted as the first member of the course. "Enquirer" would not be alone if he objected to this also, as being too expensive; yet, when all the charges upon a field of Indian corn and roots, thoroughly ploughed, hoed and manured, (considerable as those charges are), come to be apportioned amongst all the succeeding members of the rotation (as it is obvious they ought to be) who would not incur the outlay who had observed the wonderful renovation thus brought to the farm? Thoroughly ploughed and hoed, and well manured, the land must be, for upon these depend the force of the whole argument in favour of the plan, and eventual profit to the farmer. And this process, comparatively expensive though it be, apart from the destruction of thistles, apart from its effects upon succeeding crops, and regarded only as a means of making beef, mutton and pork for market, is a paying enterprise in the long run. Happily, at this day, the number of farmers following out such a system because they have proved it to be profitable, renders argument and demonstration unnecessary. Where it has long been well practised, their farms and their fortunes will demonstrate. Let the sceptics go see.

Under a judicious rotation and careful general culture, neither thistles nor other weeds have much chance of regaining their ascendancy between the periods of hoed crops or bare fallow, several opportunities occurring of disturbing them. We will suppose a hundred acres of land divided into six sections, for the purposes of rotation, and that the succession of crops is as follows:—

Section 1. Sixteen acres Indian corn, potatoes, turnips, bare fallow. As much of the land of this section as can be well manured to be under hoed crops. The unmanured remnant, if any, to be bare fallowed, and the absence of yard manure to be supplied, at the the earliest opportunity (which will occur at a subsequent stage of the course), by ploughing under a full crop of clover; unless sheep can be folded upon a crop of unmanured white turnips, or, still better, upon white turnips manured with bone dust, superphosphate, or guano.

Section 2. Sixteen acres wheat or barley, seeded with clover (thickly sown), and timothy or some other grass.

Section 3. Sixteen acres hay, which may be twice mowed if thistles abound, in which case the first mowing should be very early.

Section 4. Sixteen acres pasture. If the land be not very poor, a good crop of clover may still be expected here, which may be ploughed under on that part of the land which did not receive yard manure where fallowed.

Section 5. Sixteen acres peas and oats.

The pea land (and the oat land if both crops can be removed early), offers an opportunity of waging successful war with thistles, especially if the land be very dry, which is often the case, by immediate cross-ploughing and ridging up before winter.

Section 6. Sixteen acres wheat or barley.

It will be found convenient that these sections should adjoin each other as much as possible in the order of their numbers. Under this plan, or one akin to it, "Enquirer" might soon make havoc with the thistles which disturbed him so much, and would become practically convinced that the expense and trouble of the first section had been successfully applied with greater results than the mere destruction of thistles, and that the systematic operations through which they and all other weeds had received so great a shock, had also been the means of enriching his land, to say nothing of the simplification in the management of the farm thus introduced.

PRACTICALLY SUBDUED.

In illustration of the efficacy of the systematic course of culture recommended allow me to give the results of my own practical experience.

Seven years ago, at the age of fifty years, I gave up a business in the heart of a British city, and, with the slightest acquaintance with practical agriculture, came to this country and plunged forthwith *in medias res*, as a "book farmer." Since the first year, which was one of not much method, I have followed the course indicated in the former article as closely as the wretched circumstances of the farm would admit of; always, when I could not absolutely adhere to it, bending my arrangements towards it as a cherished object of full eventual attainment; and the amelioration thus effected may be indicated by a comparison of the former and present yields of the principal crops. My plans have again been much deranged by the purchase of an adjoining farm (grievously be-thistled), which I am bringing, bit by bit, under the rotation, along with the second course upon the old farm. The contrast of the two farms is painful to look upon, *mais nous changerons tout cela.*

	First Year.	1869.
Spring Wheat.	10 bushels.	26 bushels.
Barley.	24 "	50 "
Oats.	30 "	61 "
Peas	12 "	Destroyed by blight.
Turnips.	250 "	650 "
Indian Corn.		100 in cob.

A large portion of the wheat land produced this year over thirty bushels per acre. The oat crop was so heavy as to be all lodged, the yield being greatly diminished thereby, besides much waste in the field.

Of the clover, for want of an accurate estimate, I can only say that the first year's growth was ridiculously small, and that the quantity last year was exceedingly great. The above improvement has been brought about by one course only; the same treatment will, of course, continue effectual for many years, and may be rendered yet more so by thorough underdraining.

The tone of "Enquirer's" letter seems to indicate that he has been badly smitten with that spurious economy which prevails amongst us so largely, to the great injury of this country, and to which I have already alluded. It has had, as sickness will have, a depressing effect upon his nerves in view of minor difficulties. I must venture, however, to present to him one more draft upon his slender stock of faith in high farming. The best results cannot be reached (in the sense of profit) under the best scheme of tillage, unless all the Indian corn, oats, peas, hay, and roots are consumed upon the premises, or an equivalent be supplied by drawing manure from the towns, and the use of artificial manures. It is manure thus made that renders hoed crops profitable in fattening animals, and in the raising of grain crops. To sell them off the farm without an equivalent in return is really selling a part (the best part) of the farm.

I feel so much indebted to Stephen's "Book of the Farm" that I must, before I close this communication, very earnestly recommend it to all farmers. It may be got at Toronto. It is costly, but so it would be to open a gold mine. The most experienced farmer may read it with pleasure, and consult it with profit. The young farmer should devour it.

In conclusion, I will express my conviction, that generous and systematic treatment of land, a knowledge of principles, a courageous, persevering, energetic application of them, and capital, are essential to good and really profitable farming; that the more of these qualifications a man can bring to the work the less needs he to be frightened at thistles at starting, or to yield to misgivings about satisfactory pecuniary results; and that he who has them not in a fair degree should consider well before he commits his fortunes to the exhausted lands of the old clearings; for more or less exhausted or run out, and greatly out of condition, a large proportion of them are, especially when they come to be offered for sale.

BOOK FARMER.

Potato Produce.

Mr. Frederick Membery, of Bath, Ontario, sends us the following notes of his experience with a few varieties of potato during the past season. He says that with him the yield was as follows per acre:

Gleason.	600 bus.	No rot.
Cuzco.	630 "	One-third rotten.
Early Goodrich.	500 "	No rot.
Garnet Chili.	200 "	No rot.

Of the Early Goodrich the account was not so correctly kept as of the others, the potatoes being dug as they were required for use throughout the season. About seven pounds of Early Rose were planted, which yielded five bushels; none rotted.

Chemical Manures.

Some time since, we drew the attention of our readers to a series of experiments then progressing in France, which were intended to ascertain the relative value of chemical manures, as compared with the best barnyard or stable manure, not that it was intended either to deny or doubt the benefit to be derived from farm-yard or stable manures, but for the purpose of finding substances that might supplement and assist their action. In France, as in Canada, farm-yard manures are not produced in sufficient quantity to meet the requirements of the farm, and the originator of the system, a Mons. Geo. Ville, determined to go back to first principles, and see if he could not ascertain what the true source of fertility consists in. He therefore established a series of experiments, in which he at first made use of burnt sand, well leached and washed, so as to deprive it of every particle of natural fertility and vegetable organization, as his ground, and proceeded to use as his manures for that ground the pure mineral salts of lime, potash, soda, nitre, and the phosphates. These were reduced into a soluble state, and added to his burnt sand in various proportions, until he by almost innumerable experiments adduced the fact that grain and other crops of every kind could be produced in full perfection without one particle of earth or clay, or of natural manure or decaying vegetable matter, but with purely chemical elements alone. He proceeded with these experiments for many years, until he satisfied himself of the particular chemical substance wanted by each class of plants; and concluded, moreover, that while each class required certain quantities of all the above elements, they required especially a large portion of some one of those elements. He ascertained the exact amount each kind of crop would extract of these various chemical elements from the soil of an acre of land, and having ascertained the expense at which the chemical elements could be produced, he determined the cost and the profit of a crop so manured, as compared with a similar crop grown with ordinary manure. As no man with less than the fortune of a prince could afford the time and means to carry out such a series of experiments, it was made a national matter, and the funds requisite were supplied by the Emperor of the French. Meantime, the projector of these improvements made his plans known in a small treatise, most unfortunately entitled "High Farming without Manure," and he set forth the results of

his labours in such elaborate and high-flown language, as to elicit from many of those practical people who read the work unmitigated ridicule, while many were deterred from looking further than the title page and the first chapter or two, and then threw the book aside as altogether theoretical, and unworthy of attention. Those, however, who looked deeper into things, found amongst the verbiage of the work a great deal of valuable information and material for thought.

Mons. Ville, having the full support of the French Emperor, proceeded from his theoretical experiments to those of actual practice; he selected the poorest farm he could find, divided it off into sections, and having by analysis ascertained exactly of what the land consisted in its then present state, proceeded with his practical trials. One set of compartments he devoted to the successive cultivation (year after year) of one special sort of crop. Wheat followed wheat, barley followed barley, peas followed peas, and green crop followed green crop year after year, without rest or intermission. He now brought to bear the information he had acquired in his burnt sand, and added each year the general chemical manure, composed of all the before mentioned chemical substances, but only in so small a proportion as to produce the first growth of the crop, whilst in addition to the general manure, he added an increased quantity of the special element which the particular class of plants of which the growing crop consisted would abstract from the soil.

Thus, for his wheat and cereal crops he added to the soil, in addition to a certain quantity of general manure, a considerable portion of ammonia—ammonia and the various matters which produce it being the special manure for wheat and cereals generally.

To the land on which he sowed peas, beans, clover, etc., he gave the same proportion of the general manure, and in addition a quantity of potassa or potash—potash and its equivalents being the special manure for the pulse crop.

To the land on which he intended to raise roots he applied the same general manure, and in addition the phosphates—those and their producers being the special manure for all roots.

We are informed that, after a few years' experience, he could so exactly apportion his materials that he could take out a full crop of any particular kind, leaving the ground in so poor a state that without the annual addition it would not produce more than it would have done when he commenced to use it in its original state of poverty.

He also contended that by his system nothing was lost. If he applied a little too much of the general or of the special manure required for the use of the crop that year, it remained in the soil as available for the next year's crop.

As against this, however, must be taken into consideration the leaching away by the rains and natural waters of the soil of the excess of any mineral salt which had been added in so large a proportion as not to combine chemically with the elements of the soil. When combined, the roots of the plants alone could extract it. If in too great proportion, the roots of the plants seized on the overplus before they drew on the chemically combined elements of the soil, and thus is shown the importance of only adding to the soil soluble chemical manures in the spring and summer, while the roots are in full action, and can avail themselves of it; whereas the same soluble matter added in the winter season or in the fall passed off during the leaching of the winter's rains, and was lost to the agriculturist. On the other hand, chemical manures, not specially soluble, might be added to the soil at any time, and produce the proper effect in due season.

In addition to the before described compartments of the experimental farm, another set of compartments was applied to the production of the same kind of crop, sown and cultivated in the usual manner, but manured as before with chemical manures; and again other sets of compartments were applied to produce similar crops in a similar manner, but manured with barnyard and stable manure alone; and a last set of compartments was devoted to the production of unmanured crops, which only received assistance from the cultivation and moving of the soil in a state of nature, the use of the bare fallow, and the usual rotations, but always altogether without manure or stimulant of any kind.

This experimental farm was annually inspected by all the savans and acknowledged authorities on farming matters that could be got to look at it, and the results were carefully tabulated and noted in the records kept by Mons. Ville and his assistants.

The deductions drawn established, in Mons. Ville's estimation, the thorough triumph of the chemical manures over those of the barnyard or stable, and that to an extent of from thirty to fifty per cent., the cost of both kinds of manure being taken into consideration as well as the effect.

Not only was this advantage apparently secured, but the additional benefit was claimed that the chemically manured land not having the seeds of plants carried to the soil with the manure, became year after year more free from weeds and extraneous vegetation, while the land manured with ordinary stable and barnyard manure became foul with the weeds arising from the seeds returned to the soil in the manure, and which had not been destroyed by fermentation or moisture.

The latest recorded results are as follows:—

The experiments on wheat numbered 138, and the result in round numbers gave an advance of about nine bushels per acre in favour of the chemical manure, the cost of the chemical and of the natural farm manure being the same.

It was also found that a greater average of good crops annually was obtained from the chemical manure than from the other.

The experiments on potatoes produced similar results, also in favour of chemical manure.

83 experiments produced an average:

From chemical manure of nine tons, or 389 bushels per acre.

From farm-yard manure, 7 tons 7 cwt., or 317 bushels of potatoes per acre. (No doubt the French acre is here meant.)

From 160 experiments with beet root (sugar beet) the result gave an amount in favour of the chemical manure of within a few pounds of four tons per acre.

There are now experimental farms of this kind established all over France, in order to convince farmers by actual personal experience and inspection of the advantages to be gained by chemical and scientific knowledge, when applied to farming.

The results in the French colonies of similar operations, conducted on the same principles, have not been less conclusive. The owner of one of the best and largest plantations in Guadaloupe has found that the chemical manures possess the same advantages over ordinary manures in the growth of the sugar cane and other tropical crops that they do in France over ordinary crops—and it would be only multiplying instances to an unnecessary extent to adduce further results.

But it may be said by the Canadian farmer, "What is the use of all this to me? We cannot get chemical manures." In reply we say that information of what is going on in the rest of the world ought to be known to Canadian farmers as well as to every one else; that although we have not now chemical manures at hand, they are every day approaching us; that the lands all through the Southern States, which have been exhausted by slave labour and improvident farming, are now being daily renovated by these chemical manures; that immense manufactories of these manures are being established all over the States, and an immense amount of capital is being invested in them; that the use of such manures in Canada is inevitable in the course of a very short time, and that the minds of our farmers ought and must be prepared to receive the revolution in agriculture which the use of chemicals is certain to produce.

VECTIS.

Destroying Seedling Thistles

To the Editor.

Sir,—Permit me to make a few remarks on the "Note by Editor" to my previous article on the thistle in the February number of the Canada Farmer, where it is candidly admitted that the smothering system of "Publicola" may undoubtedly clear a field of *one* crop of thistles, (which is the only one thing up to the present that has been contended for), but what, it is asked, becomes of the countless myriads of seeds with which the soil is filled? a matter which has hitherto not been discussed. The destruction, or the subjugation, of the parent plant has been exclusively considered. Some even repudiated the idea of the thistle propagating itself by seed; but, happily, this strange notion no longer exists; for we are told in the "Note," countless myriads of seeds remain in the soil to germinate and fill the places of their exterminated parents, and then, "what is to prevent this?" This is a question I am anxious to answer. In the careful and pains-taking experiments recorded by "C" in the June number of 1869, page 204, he says the results of these experiments was "death, root and branch, but seedlings afterwards grew again from seed; but the first and second year they are easily destroyed." Now, had "C" stated how these seedlings are to be destroyed so easily at one and two years old, it would have met and answered the question propounded by Editor. "C" has undoubtedly given a latitude of one year too much for the seedling thistle to be "easily destroyed." A seedling thistle can be easily distinguished from the parent till after midsummer; but after the parent has been cut in the middle of July, or at harvest time, and has pushed up another vigorous bunch of leaves, then from this time the seedling takes rank with the parent, the one cannot be distinguished from the other, and the seedling of this year will surely mature its seed the next, but never in the first year. Thus to destroy them "easily" it must be done the first year, and it can be done as well as any other perennial.

Instead of allowing them after harvest to grow on unmolested to the end of the growing season and ripen all their leaves, before the middle of September the cultivator (not the plough) should be put over all stubbles infested with seedling thistles, and again before the middle of October; the second time it might be done a little deeper than the first. Care should be taken not to miss any portion of the ground. This process will not only destroy existing plants, but will excite the seeds of weeds that are on the surface to grow, which is equivalent to their destruction; whereas the plough would bury all such seeds where they would remain in a state of perfect preservation till they were again brought to the surface. To go over stubbles infested with thistles with the cultivator twice will only take half as much time as it would to plough it, and is practicable for all; and after the thistles have had a second growth after harvest, to be thus cut off twice in the fall will be found far more efficient in the destruction of even the parent plant than ploughing, or even such fallowing as the majority of farmers can afford to give. Twenty years ago I have destroyed long established patches of thistles on pasture land, without ever disturbing a root, only by mowing the tops off, and never suffering them to ripen or mature in the fall. I have also killed out the most obstinate patches of couch grass without disturbing the roots, with only occasional hoeings, so that the tops were never allowed to mature.

Settling in this locality, where thistle growing is a rule in all fields, and if there are exceptions they are unknown to me, and my own land being well supplied, I resolved as soon as I could to try the clover system, and this county being pre-eminently suited for the growth of clover, I felt no demurring about the result. A hundred years ago it was as great a nuisance in England as it is here; but the plan they adopted was just the opposite of that which is here in Canada insisted on. In *Loudon's Encyclopædia* I find it stated that "the thistle delights to grow in ploughed fields," and instead of fallowing for its subjugation, English farmers seeded the infested fields down into meadows, and so left them for seven years to accomplish that which they as utterly failed to do with the plough as the Canadians do at this day. I would here remark that the thistle cannot increase, or propagate itself, on clover leys or meadows. The seeds that might lodge, or even vegetate in spring, would surely come to nought. It might just as well germinate in a wooden box with the lid on; for without light and air the young plant must die, and in neither of the foregoing cases could it obtain that light and air.

I would challenge any farmer in Canada, to say, or prove, when he laid down a field in pasture, and such pasture should have just two small patches in thistles and no more, that at the end of seven years he had three patches, or even two large ones. Apart from the consideration of the seedling thistle, the plough has been, and is, the most perfect instrument to propagate the old plant by the roots. In ploughing stubbles or meadows late in the fall, with an abundance of well matured thistle heads, they come in contact with the opposite slice as the mould-board twists them over, and their heads get bent upwards, and a large portion of their upturned roots, just covered with earth, are in the best possible position to throw up several new shoots from the otherwise latent buds. The land so ploughed late in the fall is often in the best possible condition to sow in the spring without further ploughing, and the result is, a double number of parent thistles, to say nothing about seedlings; and hence, ploughing is the only one efficient method to practical farmers for the successful propagation of the Canada thistle.

I contend that the complete subjugation of this pest by the fallow system is impracticable. It is an old saying as well as true, that "one year's seeding makes seven year's weeding," and it is saying too much on behalf of *one* year's fallowing that all the seeds of any one plant weed can all be brought to the surface and be excited to growth,—even if the farmer could plough his fallow for twenty consecutive weeks; therefore, I fail to see how the evil is combated and exterminated by one year's fallowing. I contend further that the admissions of those who advocate the fallow system prove its inefficiency. "C," in the article to which I have already alluded, says, and very truly, "we know that fallowing in dry, hot weather will kill thousands of thistles, but some few old roots remain uninjured, any quantity of seed also remains ready to sprout and grow on being exposed to the air." So that his notion of fallowing did not combat with the seedlings, "the source of the evil." His plan of ploughing the thistles in the middle of June, and then to keep combatting them to the end of the growing season (say four months) is a very serious affair, and not one farmer in ten will, or can, attend to it as prescribed; and if any of the thistles escape, all the labour (or most of it) is lost for that year.

In place of the foregoing expensive remedies, and their more than doubtful success, as proved to demonstration by the advocates themselves, I offer the clover system, which involves no trouble, no loss, nor any doubt in its results, and have answered to the best of my abilities the new element introduced into this discussion, by the query respecting the seedling. In answer to this, I propose that the cultivator be used twice in the fall, instead of ploughing in; after which it is beneficial to plough the land, and this system should be continued so long as the prevailing thistle scourge remains. Without deranging his operations (if he willed it) the farmer could walk over his hundred acres, in five years, with the clover system, when not a seed-bearing thistle would be found in his once disfigured fields; then as to the seedlings, they are, (as "C" remarks) easily destroyed the first, but not the second, year.

PUBLICOLA.

Arnold's Hybrid Wheat.

A limited quantity of these new varieties of wheat, the results of Mr. C. Arnold's carefully conducted hybridizing experiments, will probably be in the market after next season's crop, and we have pleasure in publishing extracts from the report of the Committee appointed by the Board of Agriculture to examine the wheat. The Committee consisted of Hon. D. Christie, Messrs. W. H. Mills and James Cowan, who state that in their opinion the wheats were "really new varieties—cross-bred, and inheriting some of the valuable qualities of both parents; that is, they seemed to have the midge-proof character of the Amber Michigan, while Soules parentage had greatly improved the quality of the grain as compared with that of the Amber Michigan. Another important fact ought to be stated, viz.; the ears of the new varieties were much larger than those of the parent kinds, while they had even more than the compactness of the Soules wheat. The yield per acre was large, being as Mr. Arnold says, 52 bushels per acre. This return was not the result of extra culture; the land was not better prepared than any good farmer would deem necessary for good crops."

A Committee appointed by the North Brant Agricultural Society to examine these varieties of wheat report in similar favourable terms, respecting the size of the berry, the productiveness, hardiness, and midge-proof qualities of the grain. Many other agricultural authorities have given equally flattering testimony, and we shall watch the result of more extended trial with much interest. Such experiments as those of Mr. Arnold deserve every encouragement, and in the present aspect of the wheat question, and considering the gradual deterioration of most of the old varieties, the matter is of special importance.

Sugar-Beet Contrasted with Mangold.

Sugar-beet is being extensively cultivated in Great Britain as food for stock, and for this purpose it is fast coming into competition with mangold. A correspondent of the *Agricultural Gazette* says that, as a rule, the sugar-beet does not grow as large as the mangold, and therefore to ensure the same weight per acre more must be grown. To make this plain, he presumes that in an ordinary crop of large mangold there will be from sixty to eighty roots to the perch. Now, in sugar-beets there should be about two hundred roots to the same area. This increase of the individual roots will compensate for their lightness, and the gross yield of the sugar-beet will probably be as great as that of mangold. Already they are running each other pretty close in the Lavenham district. The heaviest crop of sugar-beet this year weighed in the gross thirty-one tons per acre The best crop of mangolds weighed one ton less, or thirty tons per acre. Weighed without tops the mangolds reached twenty four tons per acre, and the sugar-beets twenty one and a half tons. The number of mangolds per perch was one hundred; of sugar-beets, two hundred.

These facts and figures point a lesson and indicate the direction improvement should take in regard to sugar-beet. Many a one who remembers the first crop mangolds, with their uncouth roots and coarse large leaves, and contrasts them with the fine stock and small leaves of the most approved sorts of to-day, will see, at a glance, that the same course of selection and crossing, if needful, must be pursued with the sugar-beet. Among the crops now there are great differences in regard to top and habit. These have been noted by the growers, and most of them are saving their own seed from what they consider the best samples. It is probable that in a few years there will be model crops of sugar-beet, with little, if any, greater development of top than among the best mangolds Once this is accomplished, the roots may go even closer together, and as, bulk for bulk, they weigh heavier than common mangold, it follows that by-and-by we shall have as heavy, or even heavier, crops of the sugar-beet per acre.

Selecting Seed.

We cannot too strongly urge upon the farmers the importance of exercising a close supervision in selecting samples of seed, especially grain, of whatever crop is intended to be grown.

In the first place, it should be sound, plump and solid, and of the most productive varieties; and in the second, it should be entirely pure and free from any admixture of other grain of the same kind, and the seeds of weeds.

We are no advocate of the plan followed by some, of giving extortionate prices for a fancy article, with some new-fangled name, the merits of which are belauded in highly coloured circulars and advertisements of interested dealers. We believe good seed can be had at reasonable prices from those who, by careful selection, and clean culture, find it pay to dispose of their produce for seeding purposes, and having acquired a good name by honest dealing, are anxious to keep it up.

Above all, use the fanning mill; it is not valued half as much as it should be, and even with the best of seed we would run grain through at least once before sowing.

PRIZE ESSAY.—We have received a copy of an essay on turnip culture, by H. Love, Secretary of the South Huron Agricultural Society. This excellent treatise received, at the last fall show of the Society, the prize offered by the President, Mr. Dickson, for the best essay on the subject, and the author has well merited the honour. The essay is thoroughly practical, and its publication will no doubt promote the interests of agriculture in the county.

Stock Department.

Notes on Canadian Herds.

No. VIII.

About ten miles north of Duffin's Creek station, G.T.R., near Atha P.O., Pickering township, is Burnside Farm, the residence of John M. Bell, Esq., comprising some 200 acres. He commenced his herd of Shorthorns in 1857, with two cows imported from Scotland, along with some of George Miller's, brought out at the same time. They were Jane 3rd, by Sir John (13735), from Young Jane by Strathmore (6547), and Lucy Neal, by Sir Charles (13705), from Young Rose, by Remus (11987), both bred by Robert Syme, of Redkirk. In our account of George Miller's herd, these two were erroneously credited to him. Jane 3rd has gone to the butcher long ago, and left but one female descendant, Jane 4th. Lucy Neal, a fine rich roan cow, still survives, and stands at the head of the herd. She is now in her 15th year, and is a large massive animal of great depth and substance, and has bred regularly up to the present time. Jane 4th, a light roan cow fourteen years old, by Nichol [497], is a fine milker. She has a neat red heifer calf, Ruby, by Highland Chief. Jessie, roan, nine years, is by Young England [822] from Lucy Neal. She is a fine cow, though not so massive as her dam, and has a very handsome red and white heifer calf, Favourite, by Highland Chief. Jane 5th, roan, nine years, by Prince of Wales [578] from Jane 4th, is of good quality and a splendid milker. She has a heifer calf by Highland Chief. Bride, roan, six years, by Charles [118] from Jane 4th, is much of the same style. She has a red bull calf by Highland Chief. Bessie Bell 3rd, red with some white, 5 years, by Clifton Duke 2nd, [133] from Bessie Bell, is one of the best in the herd. She partakes strongly of the Kentucky character through her sire. Mary Gray, roan, five years, by Prior [589] from Jane 5th, partakes of the good milking quality of her dam, while she has good style and substance from her sire. She has a red bull calf, Redcap, by Highland Chief. Jane 6th, red, four years, is by Prior from Jane 5th. She is rather small, though of good style and quality. She has a very fine red bull calf, Grand Duke, by Highland Chief. Pride, white, three years, by Prior from Jessie, is the handsomest animal in the herd, and for her age is very large and massive. She has a roan bull calf, six months old, Comet, by Highland Chief, and though milking well, is in high condition, and a better representative of the breed, combining size, quality, and style, is not often seen. Tulip, dark roan, two years, by Prior, from Bride, is a large handsome heifer, of good substance. Empress, red roan, fifteen months, by Oxford Mazurka, from Mary Gray, is a beautiful animal of great size for her age, yet neat and handsome. She looks the best of the young ones, and is a credit to her sire. Jessie 2nd, red roan, four years, by Prior from Jessie, is a long-bodied neat cow. Snowdrop, white, four years, by Prior from Jane 4th, is in thin condition from a recent illness, and does not show to advantage, though of high quality. Melody, roan, three years, by Prior from Jane 4th, though somewhat small, is a fine, handsome, neat animal. Rose, red and white, by Valentine from Jessie 2nd, is inferior in quality to the rest of the herd. Miss Ann, roan, two years, by Prior from Jessie, is a large and somewhat coarse animal, that may improve with age. Flattery, white, two years, by Prior from Jane 5th, is promising, though small yet. Daisy, roan, one year, by Highland Chief from Snowdrop, is a very promising young one, as is also Jenny Lind, a roan yearling, by the same bull, from Jessie 2nd.

The bull now in use is Highland Chief, 6884, a dark red bull of fine style and good substance, bred by J. M. Hill, of Harristown, Ill, U. S. He is by 11th Duke of Airdrie, 5533, from Margery by Afton, 1173. He is now three years of age, was imported by Mr. W. Miller, jr., of Pickering, and sold to Mr. Bell early in the fall of 1868. Previous to this Prior, [589] a roan bull bred by R. A. Alexander, of Kentucky, had been used by Mr. Bell. He was by The Priest [743] from Fanny by Fantichini (12862), and traces back through his sire to Earl of Dublin (10178), a bull of the best milking strain of shorthorns in England. The introduction of these two Kentucky bulls into the herd seems to have been the means of improving it greatly, and taking the whole herd together, it is seldom one meets with one of more level and evenly good quality throughout, combining both size and style with good milking properties.

The stock get no feeding beyond hay and turnips, are kept in good breeding condition, and have never yet been shown at Provincial Exhibitions, but will be this year.

A few Cotswold and Leicester sheep are kept on the farm, and several Clydesdale colts were running in the straw-yard.

While in Markham, we did not forget to call on George Miller, the patriarch breeder of shorthorns in Canada. The young ones we saw last fall are in fine thrifty condition, looking most beautiful. Already this season's calves by Bell Duke of Oxford have begun to come in, and present indications show the likelihood of another splendid lot of shorthorns by him.

Mr. Miller showed us a very fine Berkshire sow he has lately obtained from Mr. H. Cochrane, and some Dorking fowls just out from Scotland. He has sent two of his finest heifers by Bell Duke, to 11th Duke of Thorndale, at Compton.

The American Short-horn Herd Book.

The ninth volume of this important work, indispensable to the short-horn breeder of the neighbouring States, and exceedingly useful to many in Canada, has just been issued by the well-known editor and publisher, Lewis F. Allen, of Buffalo, N.Y., price $10. It is handsomely got up, and bound in cloth, in two parts, containing together over 1,000 pages. Part I. contains the pedigrees of 1959 bulls, from 7439 to 9398. Part II. has the pedigrees of about 3,520 cows, making altogether in the volume some 5,380.

The accumulation of so large a number of pedigrees for publication in so short a time, Vol. VIII. having been published scarcely two years back, affords pretty strong proof of the activity prevailing at present in the pursuit of short-horn breeding in the adjoining States of the Union. And there appears very good reason too for such activity, if we may judge from the highly remunerative prices at which high-bred short-horns have been sold in numerous instances of late. Mr. Allen in his preface says:—

"Prices for choice animals were never so high, nor were such animals ever so eagerly sought by our enterprising farmers and breeders as during the past two years. Some bulls and cows have been imported from England during the past year at a cost varying from $2,000 to $5,000 each, in gold coin. Several cows, of American breeding, have been sold in our own State, at $3,000 to $7,000 each, and bulls at $1,500 to $6,000 each. Concurrent with their progress here, short-horns never sold at such high prices in England as now, nor need these be considered FANCY prices alone. Fashion, no doubt, to some extent prevails in the choice of some peculiar strains of blood and styles of form; but when the prices we have named are paid by experienced breeders, and those among the best judges of quality and blood in cattle, it may well be believed that they find their interest in so doing. Men of education, wide intelligence and ample capital, in all our Northern and Middle States, engaged in various pursuits other than agriculture, are among our most enterprising cattle breeders, as well as those whose vocation is confined to their farms alone, and in this noble pursuit they find both profit and pleasure. More and better than this, every good cattle breeder in the country is a public benefactor."

Vol. IX. contains an unusually large number of illustrations, about seventy, several of them being portraits of animals which have recently changed hands at very high figures. We need only call the attention of breeders to the fact of the publication of the volume to ensure a ready demand for it among those interested.

The Barmpton Short-horns.

Even at this distant day, a short account of the celebrated herd of Robert Colling, the descendants of which are now so widely scattered wherever short-horns are known, will be interesting.

In 1783, Robert Colling left his brother and took the Barmpton farm. Some of his earliest stock came from Mr. Milbank of Barmingham. These were noted for their excellent grazing properties.

From one of the original cows of this stock came the Yellow Cow, by Punch (531); from her came by Favourite (252) the dam of the celebrated "White Heifer that travelled." She was twin with White Bull (151), and never bred. From the Yellow Cow came North Star (459), also by Favourite. He was a grand bull, with good hair and fine handling. From her came the cows Venus and Clara, and Diamond, a small bull of perfect symmetry. Venus bred the bull Adonis (7), and a heifer that was sold young. Clara bred the bull Eryholme (1018) and another bull and heifer.

Robert Colling had four families from which the majority of his stock descended. Of these the Yellow Cow above mentioned was one. The second was the Wildair or Hubback tribe, which came from the same source as Hubback (319). Of these were Juno, Diana, Wildair, and Nonpareil, the last considered the finest cow ever seen. Nonpareil bred Sweetbriar, by North Star (459), and Marske

(418) a bull used by Mr. Bates. Sweetbriar bred May Rose, that went to Ireland, and Formosa, that bred Mr. Torr's Flora, from which the Flower tribe, the finest at Aylesby, have descended. Wildair bred Caroline, Harold (291), Phœnix, Emperor (1013) and three other bulls. Phœnix went to Charles Colling, of Ketton, and there bred the celebrated bull Comet (155), sold for a thousand guineas. The third was the Beauty, or Punch tribe, originally from Mr. Best, of Manfield. Of this were Beauty, Golden Pippin, Clarissa and Old Daisy. Beauty was from the same dam as Punch (531). Golden Pippin was by North Star, and went to Mr. Whitaker, where she bred Nonsuch, and both then went to Mr. Adkins, of Milcote. Old Daisy bred Ben (70) and Twin Brother to Ben (660) afterwards sold to Mr. Booth. The fourth was the Red or Moss Rose tribe, of which the origin is unknown. Red Rose was own sister to the American Cow, the first female named in the now fashionable Cambridge Rose line. This cow was bred by Robert Colling, and sold by him when a yearling, to go to America. She came back again, and passed into the hands of Mr. Bates when 17 years old, and bred Red Rose 1st, by Yarborough. Red Rose bred Moss Rose by her own sire, and proved a regular and excellent breeder, most of her calves being bulls. Among them were Miner (441), Midas (435) a fine large bull that made 1,100 guineas for Mr. Colling, and finally went to Mr. Wiley, of Brandsby, and got for him but two calves, Midas, 1230, and the famous Grazier (1085). She also bred Baronet (62), sold for 350 guineas, and Pilot, (496), sold to Mr. Booth for 270 guineas, and a heifer Rosette. Moss Rose bred Barmpton (54), Lancaster (360), and Young Moss Rose. Barmpton was a small-aized but beautiful roan, neat, wide backed and compact. He got splendid stock, said to be better than North Star's. He was by George (275), a magnificent bull that fell and broke his neck when young. Lancaster, a white bull, was of fine quality, but narrow, thin, small and lanky. He was let cheap as a yearling, but got most extraordinarily good stock, that became the talk of the country. This, coupled with the fact of his being from so grand a cow, brought Mr. Colling 621 guineas for him. Young Moss Rose went to Stockeld Park, where her descendants still remain.

Besides these leading families, Mr. R. Colling had several heifers got by Favourite (252) and Wellington (680), from cows bought from his neighbours or at the fairs, most of which became progenitors of many fine short-horn families. Among them may he noted Cowslip, from which came the Ursula tribe of Mr. Rich of Didmarton, Empress, Princess—from which came the Gwynne tribe—Strawberry—from which came the Mantilini tribe—Jessy and Jewel (twins), Cicely, White Rose, Lady, Old Dinsdale, Countess, and Young Charlotte, besides several others, some not named.

Hubback (319) and Manfield (404) were the first bulls used, succeeded by Broken Horn (95), Punch (531), Favourite (252), Comet (155), Phenomenon (491), Wellington 680, besides several bulls of his own breeding, as he bred to very close affinities, using Favourite very extensively for years.

At the sale at Barmpton, in 1818, eleven of the Red Rose tribe, including Lancaster (360), brought an average of £269 3s. 6d. each, and thirteen of the Wildair tribe £142 17s. 6d. each.

Housing and Feeding Cattle

To the Editor.

Sir,—Having seen in the Canada Farmer some articles about housing and feeding cattle, and believing that in some particulars I can suggest improvements, I send you an account of my operations.

For the accommodation of my cows I raised a house, sixty-four by thirty-four feet within, in the side of a clay bank. There is a cellar of stone and lime, eight and a half feet high, divided by a wall across, fifteen feet from one end, so as to make a cellar for roots. It is ventilated by four pipes on three sides, six by six inches, through the floor and walls, with slides to cover them. The floor is drained into a well of good sweet water. There is a ring of brick laid in cement round the well. The spare water is let out through a pipe. The floor is laid with cement. The floor of the large cellar is also well drained and laid with cement; and besides, about two and a half feet of the walls are cemented to keep bad water from the well. There are four stone pillars and two cedar posts in the cellar to support the floor above, and the purlin posts. The door for taking out the manure is level with the floor. There is no frost in the manure. The cellar will hold five or six months' manure; and the small cellar will hold roots to supply twenty-eight cows all the season, at the rate of twenty pounds daily each. The beams for the first floor are cedar, resting on the walls, and on the pillars mentioned as being in the cellar. There is some care needed in placing these beams to answer the different inclines of the cattle floor. The floor is of two inch pine. There are four rows of cows, seven in each. There is a passage the length of the house. There are two doors in the side. Fourteen cows go in at each door, and stand with their tails to each other. The upright scantlings that form the stalls are fastened to the floor below and the beams above. The feeding troughs are made, the bottoms of two inch pine and sides of one and a half inch pine; the divisions between them being four and a half feet high; the inside of the feeding box is sixteen inches wide, the front eight inches high, the back thirty-one inches above the bottom. The back of the box inclines outward seven inches; this is important, as it prevents the beast wasting the food. There are pieces of three or four inch scantling put between the floor and the bottom of the box. The distance between the front of the feeding box and the gutter may be six feet; the two gutters, with the open space between them of fifteen inches, will be three feet eight inches. The gutters are two inches below the floor; where the cow stands pieces of three inch scantling are put across the open space of fifteen inches, and a two inch plank, twenty-two inches wide, covers it; all excrements pass into the cellar below this plank. There is no trouble to keep the cows dry and clean, and no waste of manure; there is no excess of water in winter. Some black earth or dry earth, not much, is wanted in summer to absorb the excess of water. There are five windows in the back of the house, and three in the front, with the two doors. There are six openings, thirteen by fourteen inches, through the upper floor, and pipes set on them that reach up through the hay. In the roof there are two windows and two ventilators, which draw off all smell or bad air, and in addition, there is a window high up in each gable. The windows are all alike, six lights, eight by ten, and boards, ten by twelve, on hinges. The house is a frame, with cedar sills, the posts being eight by eight inches, and sixteen feet high; covered with good boards—the joints covered with dressed stuff, one inch by three, nailed every two feet. It is lined inside with inch boards, and filled in with tanners' bark. The floor above for hay is eight and a half feet to the roof, and thirteen and a half feet to the purlin beams; it will hold hay for the twenty-eight cows. The roof got two coats of coal tar; and the siding two coats of fire-proof paint. Hay may be taken in at either end with a horse-fork. There is a space above the turnip cellar, fourteen by thirty-three feet, for preparing food; in it there is a pump, a turnip-cutter, a bin for holding broken grain, and three boxes, five feet by seven and four feet deep, to hold the food.

After a good deal of experience, and some study and calculation, I have come to the conclusion that the following quantities and mixture of food are about right for a fair-sized cow giving milk: Twenty pounds clover hay, twenty pounds turnips or beets (fine cut), two pounds bran, five pounds broken oats, two pounds pea-meal (equal altogether to 45 pounds hay). Some small cow will eat less, and large ones more. The mixed food being placed in the box, put in

the same amount for every cow: the box will hold feed for thirty cows. Damp it well with water, and tread it down, in forty-eight hours it will ferment and be hot; then feed out. I use a barrow with two wheels that holds twenty bushels; the man draws it easily along, and with a bushel box divides it in a few minutes. If any cow wants more, give a little dry hay, and as much water as she will drink, three times daily. I, for some years, fed about sixty pounds Swedish turnips, five pounds meal, pea and oat, with fifteen pounds hay. Steers or dry cows would not take any water; the bulk is too much, and there is too much cold water in the turnips. This is about equal to thirty-nine pounds hay. There is one hundred pounds oil-cake wanted (it costs delivered three-quarters of a cent per pound), two pounds daily three or four weeks before calving, and two pounds daily a month after calving, when full feed should be given, as described above, until cut grass is plenty.

I am satisfied with the method, having used it nearly four months. The rent for each cow, at ten per cent., is four dollars per annum. This may be high, but the convenience is all one can desire. The house is free from smell, well lighted, and has water and room for the roots and hay to feed the winter through. The cellars cost near twenty-five per cent. of the whole. There is a hay-cutter on the upper floor; the cut hay is let down through the floor into the large boxes; it just wants a steam-engine to crush 2,500 bushels of grain and cut 140 tons of hay, with straw for litter. If all litter were cut, the manure could be taken out and spread on the surface of the field, or ploughed in, as might be desired. My other cow-house holds thirty cows, but is not so convenient; but I hope to improve it soon.

JOHN ROBERTSON.

Bell's Corners.

Live Stock at the Provincial Exhibition

To the Editor.

Sir,—With your permission I desire to call the attention of the members of the Council of the Provincial Agricultural Association to a few matters in connection with the annual exhibitions of the Association, which I think deserve their consideration. Probably no one will deny that the live stock department is one of the most important features, if not the most important, in connection with these exhibitions. Let our Provincial Fairs be stripped of the fine display of horses, cattle, sheep, and swine, which has made them so justly famous, and who will deny that their greatest attraction would be gone. It is safe to say that the interest taken in them would be small compared with what it is, and the attendance of visitors would be correspondingly reduced. Now, I think a little consideration will suffice to show that it is the worst used department in the whole exhibition. For the reception of the articles exhibited in the other departments a grand building is erected at an immense expense, where those articles are exhibited to great advantage, and men are paid to take care of them, and all this without the first shilling of expense to the exhibitor; while for the live stock, which is infinitely more valuable and just as liable to suffer from exposure, temporary sheds are provided, which are often uncomfortable and inadequate; and if a box stall is required for a horse or a bull, an exorbitant rent fee is charged.

Besides these things, feed is only provided at extortionate prices, often for an inferior article, and parties are not allowed to sell feed on the ground at their own prices, because the Board has granted that special privilege to special parties, who are allowed to monopolize the business. How very different is this from the arrangements at the State Fairs of our neighbours, where an abundance of good hay is provided by the Association for the stock, without any charge; where stalls are free, and railway freights both to and from the fairs are also free. If this interest is so important, surely it ought to be encouraged. I write not in the interest of the leading breeders and exhibitors alone, for I know that they can afford to pay their own expenses, that by showing a large number of things they can secure enough prize money to pay the immediate expense of attending the fair, besides finding a good market for their stock; but I plead in the interest of the new beginners in this enterprise, and I hold that if greater encouragement were given there would be far more exhibitors, and, consequently, more interest manifested. According to the present arrangement, if a person living a considerable distance from the place where the fair is held desires to show a horse or a bull, he finds that if he is successful in winning a first prize, it will barely pay the expenses of transportation and feed, and if he fails to win a prize the whole expense is lost to him, and thus it is that many are deterred from competing. The expense of preparing stock for exhibition is considerable, and the railway charges for transportation are also heavy, to say nothing of the risk of their being injured or killed.

Why cannot the same arrangement be made with our railways that are made by the State Societies across the lines with their railways? Canadians who take stock to the State Fairs can travel by rail with their stock to almost any point and return, free of all charges. Surely the immense extra passenger traffic which these events bring to the railways is sufficient to pay for the carrying of articles to and from the exhibition, and allow a good margin for profit. When we consider that it is these that make up our fairs and draw the crowds, surely some liberal policy ought to be adopted to draw out our young farmers and breeders. I claim that in all fairness and reason stock ought to be carried to and from the fairs free, and that stalls and hay ought to be provided free. All, I believe, even if they do not claim as much as I do, will agree with me that ample and good accomodation, and food at a low rate, should be provided.

YOUNG FARMER.

Raising Calves.

To the Editor.

Sir,—In your article under the above heading, which appears in your issue of the 4th inst, I agree with the introductory portion, but must take exception to your directions for feeding and care when approaching maturity:—

1. In advising to give skimmed milk, and afterwards either that or sour milk mixed with meal.

2. In having them *come in* as cows in their third year.

When skimmed milk is given to a calf, it acts as a purgative, which at once sickens the animal, and causes it to refuse food for two days, and for a long time every dose of this unnatural food is followed with like results.

A continual drenching of the calf retards its growth at the outset, and an inferior animal is to be expected. The addition of the meal only increases the indigestibility of the mixture.

I have been for several years in the employ of noted stock raisers in Scotland, and their system was to allow the calves selected for raising to suck the mothers twice a day (they being separated the rest of the time). This was continued till they were six months old. After each removal of the calf, the cows were carefully examined to see that no milk was left, and if any, it was taken from them.

During the summer, the calves were placed in a field of growing grass or clover, and freely supplied with water. Nothing else was given.

When weaned, and during the cold weather, they should be provided with a warm stable, and regularly fed three times a day with good hay; every morning the rack to be cleaned before being supplied with fresh hay. About a pailful of dry provender to four calves to be given every twenty-four hours, or as an occasional substitute, two sheaves of oats.

During wet and stormy weather, they should be watered in the stable. It is not good policy to allow lambs to be with them as you advise, as calves often get into the habit of eating the wool of these, which would be obviated by separation. During the second winter it is still advisable to keep them separate from the older cattle, while they should be housed and liberally fed. By this method the growth is never checked nor retarded, and if it were followed we should not have so many scrubby specimens of cows in the country.

Again, you defeat your object to secure good cows by allowing them to go to the bull so early as to have them *come in* in their third year.

The growth is not completed till the third year, and it is mistaken policy to have them bear and give milk before their fourth year, or till they have arrived at maturity. This, with the skimmed milk course, is in my opinion the great cause of our inferior stock.

Our winters here are more favourable for cattle raising, when they are properly fed and sheltered, than the changeable winters of Scotland, and if they get the justice there given them, we should have at least equal if not superior animals.

MALCOLM McGREGOR,
Roxborough, Feb. 24, 1870.

NOTE BY ED.—Our article on this subject was not intended to apply to the case of breeders of high class thoroughbred shorthorns, or in cases where the value of the milk is a secondary consideration to the value of the animal intended to be raised in order to fetch a fancy price. In their cases it is quite usual to allow the calves to suck the cows, or even where that course is not pursued (and it is a most undesirable one in many respects), they are allowed nothing but new milk. But it would be folly to expect the farmers, as a class, to devote all the new milk of their cows to the sole purpose of raising calves, when it is worth more for making butter. As to skimmed milk being continually purgative, our own experience, as well as that of several other breeders to whom we have lately spoken with reference to this subject, is that it is not so. If given to a calf accustomed to suck, or have new milk warm from the cow, it would in many cases prove purgative for the first two or three days. We have found that if warmed to a proper degree it does not purge to any appreciable extent. The meal should be boiled, and then stirred in; but then few will take that trouble, and we fear few even take the trouble to heat their skimmed milk to a proper degree, and it is giving the calf the milk cold that causes all the trouble our correspondent speaks of.

In regard to the other point, opinions may well be allowed to differ; but our object was to show that animals that had been well fed and cared for would attain maturity, and so be fit to breed, earlier than those that were neglected and stunted. A few days since we saw a very fine shorthorn cow, now six years old, that has bred six calves at single births, the first one coming when she was eighteen months old; and we think few breeders of pure stock in this country could be satisfied to wait for their heifers to reach their fourth year before breeding.

Shrinkage on Hogs.

We have as yet received but very few answers to our enquiries on this subject. The cause may lie in the lateness of the season at which they were made, the greater portion of the hog products having probably been marketed. Another is the difficulty experienced by farmers in getting fat hogs correctly weighed at just the right time.

A firm in Pennsylvania, largely engaged in fatting hogs of the Chester White breed, gives the shrinkage or loss between live and dressed weight of a large number as follows: On hogs weighing over 600 pounds, loss 12 pounds per 100 of live weight, or less than one-eighth. 300 to 600 pounds, 14 pounds per 100, or less than one-seventh; 150 to 300 pounds, 16 pounds per 100, or less than one-sixth.

They say common scrub hogs will lose more, and that there is a wide margin for profit between feeding improved breeds and common hogs, more than sufficient to pay the extra prices demanded for animals of the former.

A Mr. Eckardt, of Markham, gives the live weights of two eight months old Berkshires he killed as 302 and 283 pounds respectively. Each gave twelve pounds of rough lard, and weighed besides 250 and 245 pounds, showing a loss of less than one-tenth. Another Pennsylvanian gives an account of a Chester White hog he killed that weighed 1,065 pounds alive, and 1,005 pounds dressed; less than one-sixteenth of loss. An Ohio man gives the live weight of a twenty-three months old Chester hog at 985 pounds; dressed weight 870 pounds, a loss of one-ninth.

We hope to get some more answers, and shall reserve any further remarks on the subject till it can be more fully investigated, but so far the evidence is in favour of what we have always maintained, viz., that the amount of shrinkage insisted upon by drovers and packers in buying fat hogs alive is much too great for the interests of the farmer who has really good hogs to sell.

Barren Cows or Heifers

It is no unfrequent cause of complaint with breeders that valuable cows or heifers sometimes fail to breed. Such instances rarely occur, except in the cases of animals that have been pampered, that is, brought to a high condition by means of extra feeding or "forcing," as it is called. Such animals need not be condemned as barren, as under good management they can be brought to breed. It is well to reduce them in flesh about the beginning of summer, by turning them into a hilly short pasturage for a time. A long drive will often prove beneficial. Sometimes a change from one herd or farm to another some miles away proves a sure remedy after every other has failed.

Deliosacy of constitution may sometimes be the cause, from too close in and in breeding, and where the same bull has been used in a herd for some years he may fail with some of the younger cows and heifers, in which cases resort must be had to another bull that is in no way related to the herd.

Bulls that are too closely bred, or that are fed too much on rich carbonaceous food, frequently prove unreliable stock getters. They should get albuminous food in preference, such as peas, oats, barley, and the leguminous grasses. In fact, anything very saccharine or sweet is undesirable. A bull should always be kept in good condition, but should not get fat, and the more he is used the more need there is of giving him oats or barley, but he should never have Indian corn. The forcing of bulls when young, in order to get them into high condition and early use, is sure to prove injurious, and result in greatly diminishing their vigour. Neglect to give salt at least once a week is often a cause of barrenness among cows and heifers. A bull should never be allowed to run with the herd; that is one great point often neglected, and results not only in inducing barrenness, but also in producing abortion among the females. It is one of the most common, yet most pernicious practices indulged in by breeders, more from carelessness, and a desire to save trouble, than want of knowledge.

Steaming Roots for Stock.

A subscriber from Yarmouth, Nova Scotia, asks us to give, through the columns of the CANADA FARMER, the least expensive mode of steaming roots for hogs, on a small scale.

Among other experiences of farm husbandry, one of our regular contributors has carefully tried and practised the following plan both in England and Canada, and having at command small means, the annual expenditure was kept very low. His account is as follows:

For a small inexpensive rig for steaming roots for stock, I have used and would recommend an ordinary potash kettle, if the farmer has one, (of course a better boiler would do its work quicker,) set in a brick arch, with plenty of fire room, and about ten feet of ascending chimney, and a cover fitted into the kettle, made of two-inch dry plank, well jointed, and nailed firmly on scantling to prevent warping. A bar of wood passes across the cover and another crosses this, and each end is firmly secured to the "lug" or propelling support of the kettle, (there are usually four of these "lugs,") by a piece of iron hoop formed into a band, and well hooped on to each projecting end. These bars will firmly hold the cover in its proper place. All round the edge of the cover you must caulk cotton-batting or flax, driven well into the joint, so as to be steam-tight. This is very easily done, as there will be no pressure. A barrel with one head out is placed on the cross, and communicates, by means of a cock, with the kettle below. The barrel is to be filled with water; and the boiler below, as the water evaporates, is supplied from this source.

A two-inch wrought iron or tin pipe, well wrapped over with old rags to keep in the heat, rises, by means of an elbow, from the cover, and turns at once over the side of the kettle, and with another elbow fits into a short piece of pipe, called a nozzle, that enters the centre of the back of the puncheon in which the roots are to be steamed, close to the bottom, and underneath a perforated false bottom placed in the bottom of the puncheon, on which the roots rest. This is supported by two-inch bearers arranged across the puncheon head to receive the weight of roots, and must also allow of the steam freely passing all over the under side of the perforated false bottom. To get rid of the condensed water, without letting the steam escape also, requires a small piece of lead pipe, bent like the letter *v*. The upper end enters the puncheon, below the false bottom, and the lower end is left sufficiently long to be below the double, thus forming a syphon; half-inch lead pipe will answer well. The water, as it condenses, will flow out of the lower end, without allowing any steam to escape. The puncheon is supported by an inch bar of iron passing through the lower part about fifteen inches from the bottom, and must be about six inches longer each side than the width of the puncheon. Two posts are driven into the earth, one on each side, with notches cut in the top to allow the projecting ends of the iron bar to rest in.

A square hole is cut in the upper head of the puncheon, to admit of the roots being filled in with a shovel, and emptied out. The piece that comes out forms a good cover to go back again, if a piece of blanket or cotton cloth is placed over the hole before the cover is put in, and this serves to keep in the steam and is sufficiently tight.

The puncheon is now in its place, the pipe connected with the nozzle, and a piece of cotton wound round it to keep it steam-tight. The syphon pipe, or leak water, is inserted on any convenient side. The boiler is filled with water, and the barrel on the top also. The fire is lighted underneath, and the whole arrangement is complete, with the exception of covering the lid of the kettle with about two inches of sand, which will prevent any small escape of steam, and keep in the heat. We now remove the square cover and fill the roots into the puncheon. If potatoes are used, they want no cutting; if mangolds are wanted, or turnips, they must be cut into pieces about the size of a goose egg. The puncheon can most readily be supplied with a hand-barrow, with handles at each end, and the same barrow serves very conveniently to remove the roots when steamed. To do this you must place the barrow in front of the puncheon, disconnect the pipe at the back, and gently upset the puncheon (it will readily turn on the projecting ends) and all the roots will run out into the barrow. I used, for many years, an ordinary wine cask, that held about 120 gallons; and if good steam is used, with good dry wood, about one hour would steam the puncheon full of roots; but, of course, the time required much depends on the draught, mode of setting chimney, and general arrangement.

The foregoing plan is cheap, efficient and simple, and within the reach of any farmer fit to keep a pig. Of course frost must be guarded against, wherever steam works are used, as cocks and pipes will burst if left full of water. The potash kettle, however, will not be injured by frost. In setting the kettle allow plenty of room for fire all around and underneath.

Cattle Stalls and Manure.

To the Editor.

SIR,—Referring to the letter of "Byreman," and your answer in the February number, I perfectly agree with you in your method of stabling and fattening stock, but you do not finish the story, and say what is to become of the manure after being taken from the byre at such short intervals. Is it to be thrown out to be wasted by the rains, or put under covered sheds to accumulate till wanted in the spring, or carted at once and spread on the frost on the fields where wanted, or piled in conical heaps in the fields?

Allow me to point out what appear to be the objections to these different methods, with a view to promote discussion, and also to gain information on this most important subject. It is unnecessary to speak of the first plan, as every intelligent farmer knows that it is ruinous. If put under sheds till spring, it is only farmers dunging small portions of land that can possibly delay their work till so late. If to be carted at once to the fields, it would be necessary that a farmer, by the plan you recommend, should have sufficient stock to keep a cart constantly employed, and even then, continuance of bad weather would cause great inconvenience. As to whether it should be made in heaps in the fields, or spread directly on the ground, I think, judging from the contradictory opinions of eminent chemists, and first-class agricultural journals, it is hard for the ordinary farmer to decide what to do.

I should propose a modification of your plan; the space behind the cattle should be so arranged as regards depth and width, that sufficient manure should be allowed to accumulate to make it a day or half a day's work for the teams to cart it to the fields to be dunged. I cannot see any objection to this, but I have never tried it.

I cannot agree with you in your objection to box feeding, having tried it for a number of years. Although living on a cold, exposed hill, we often have to leave the doors open to prevent the cattle from sweating, but I do not altogether believe in box feeding, as you cannot economise space sufficiently, and I believe that straw should be all turned into food, instead of bedding. I consider that the simple question of floors for stables in your February number involves one of the most scientific questions the farmer has to deal with in the present day; for if we can make and cart our manure to the place we want it all winter, it does away with one of the greatest drawbacks to Canadian farming. I hope that this subject will be taken up and discussed by abler hands. A FARMER.

Windsor, N. S.

SALE OF STOCK.—Mr. Ashworth, of Belmont, Ottawa, has sold his shorthorn bull, The Viceroy of Belmont, got by Sweetmeat (20924) out of Souvenir of Thorndale by 2nd Grand Duke (12961), to the Hon. B. Seymour, of Port Hope.

Veterinary Department.

Symptoms of Navicular Disease.

The professional veterinarian generally has little difficulty in detecting a confirmed case of navicular disease, but it is often puzzling to the casual observer or amateur, and mistakes in consequence are often made. The horse is always more or less lame, and the lameness is greatest when the animal is first brought out of his stable in the morning, at which time he generally walks with a tripping action, gradually becoming freer in his movements after exercise, and when warmed up to his work he appears to go almost sound. When standing he favours or points the affected foot, and when both feet are alike diseased, he keeps pointing with one foot, then pulls it backwards and favours the other. In severe cases, he seldom stands firm upon both fore feet at one time. The heels become contracted, and general atrophy or wasting of the foot is also the result. This is easily noticed when the disease is confined to one foot, for it becomes considerably smaller than its fellow. The toe of the shoe is also worn quickly down from the peculiar action. The muscles of the limb also waste, and more particularly the muscles on the outer part of the shoulder; and this wasting is often taken for the cause of the lameness, when it is only the effect. It is this condition of those muscles that often misleads as to the true nature of the disease, and the horse is supposed to be lame in the shoulder, when he is in reality a confirmed cripple from navicular disease. These symptoms may continue the same for a considerable time where the horse is moderately worked, but if he is hard wrought, they become more aggravated, until the horse is completely useless for any ordinary work, and particularly so when he has to carry weight. If the foot is taken up, and the sole at either side of the frog struck gently with a hammer, he at once evinces pain, shown by pulling his leg quickly and forcibly upwards. Pressure with the the thumb upon the tendon immediately behind the frog will cause him to act in a similar manner. The above are the general symptoms of navicular disease. Exceptional cases are met with, where the foot is not contracted, and also where the horse points but very little.

The treatment of confirmed cases of this disease can only be of a palliative nature. In recent cases, however, a complete cure may be effected. The horse

should have rest, the shoe be removed, the sole moderately thinned down, and the toe shortened; then poultice the foot, or stand the horse in moistened clay, or a water bath. This treatment should be continued for several hours daily, and the horse afterwards be put into a stall or roomy horse box. After a time, blisters around the coronet are also beneficial, and even frog setons; and in horses that are incurably lame, the operation of neurotomy may be performed, but should only be attempted by a person conversant with the structure of the foot and limb, and only resorted to in inveterate and incurable cases.

Symptoms of Acute Laminitis.

This severe disease is indicated by the excruciating pain exhibited by the suffering patient. The animal is almost unable to move, and when forced to walk, he progresses in a very peculiar manner, by placing his hind legs well forward under the body, in order to relieve the fore feet. The breathing is increased greatly in some cases to such an extent that on a casual glance the animal might be supposed to be affected with an acute attack of pleurisy. The circulation is very much quickened, the pulse beating sixty to eighty per minute, the temperature of the feet is raised, and the pastern arteries are throbbing. The muscles of the shoulder and flank are quivering, and in some instances the horse perspires freely. The bowels are usually costive. If you take the horse by the head, and attempt to force him backwards, he draws the fore feet along the ground. If you attempt to turn him around, the effort to do so will almost cause him to fall. When standing, he keeps his fore legs well out, throwing the weight upon the heels, and the hind legs are brought far under the body, giving to the loins a somewhat arched appearance. This symptom frequently misleads as to the seat of the disease, and the horse is supposed to be affected in the region of the kidneys, when he may be suffering from an acute attack of laminitis or founder.

Inversion of the Womb.

Mr. Richard Serson, of Fulgrove, enquires what is the proper treatment to be adopted when cows "put out the calf bed," and mentions also that he has noticed "cows, and especially heifers, in high condition, swell very much about the navel for a considerable time before they calve."

Inversion of the womb frequently follows the convulsive efforts in the expulsion of the fœtus. The treatment in such cases is to return it as quickly as possible. It should be washed with a little tepid water, and in cases where the placenta or afterbirth is not detached, this should be carefully removed; then support the womb by means of a strong towel, and endeavour to return it by gentle pressure. When the womb is swollen, it might be advisable to scarify it lightly and freely before attempting to return it, but this should be done with caution, and had better be entrusted to a competent veterinary surgeon. Having succeeded in returning the womb into its proper situation, the next object is to retain it there. This is best done by elevating the hind quarters, and applying a pad to the vulva for some little time, which may be secured to a surcingle placed around the abdomen, and behind the shoulder.

Swellings under the belly are often the signs of a good milker, and rarely do much harm. By giving a less quantity of food, and a few doses of the iodide of potassium, their removal will be facilitated.

The writer of the above communication complains that he has written before without receiving any reply. We can only assure him that his previous communications have not reached us. We would, moreover, particularly request our correspondents in general to send communications to the editor distinct, and on different paper from letters enclosing money or treating merely of matters of business.

Hydatids in Sheep's Brains.

To the Editor.

Sir,—I have recently lost two good ewes within a week of lambing. In each of them were found two fine lambs. The sheep both died on the fourth day after the first indications of disease, and the symptoms being peculiar and precisely similar in both cases, my foreman very carefully examined the last one, to find out, if possible, the cause of death.

I send for your inspection a large grub, which was found close to the brain, and which, I have no doubt, caused death.

The symptoms were, first, a nodding movement of the head, and grinding of the teeth, as if in great pain, then a trembling of the fore legs, and finally, loss of strength in the hind legs, the sheep falling on its haunches, and being quite unable to stand.

They continued to eat, as usual, the first, second, and third day, but took nothing the fourth day, when they died. S. G.

Reply—The grub shown us appears to be of the kind frequently met with in the brain of sheep that are affected with the disease known as "sturdy," or "gid." It is called the *Cœnurus cerebralis*, and it is believed to be produced from the ova or larvæ of the tape worms which are dropped from dogs. The minute ova or larvæ may be taken into the month from off the pasture or other food, and so taken into the stomach. They are exceedingly minute, enter the circulation with the chyle, and thus gain access to the brain by means of the blood. The soft, loose texture of the brain is favourable to their further development. In the brain they usually become enclosed in a membranous sac From their situation, they give rise to various symptoms, often such as stated above, whilst in other cases the head symptoms are more alarming and severe—the animal reels about, wanders from the rest of the flock, and in some instances keeps continually turning round and round, plainly showing that the brain is the seat of disease. The hydatid frequently causes partial absorption of part of the skull bone, immediately over its situation.

The remedy in such cases is to remove the hydatid, which is often successfully accomplished by the use of a small trochar and canula. In operating, the head must be carefully examined, to find the seat of the hydatid, which is frequently indicated by a softening of the bone, as already stated. The skin is dissected back, and the trochar and canula introduced; and it is also necessary in some cases to use a small syringe to draw out the hydatid. The after treatment consists in bringing the edges of the wound together, and using any simple dressing. In many parts of Britain the shepherds perform this operation in a very dexterous manner, but we would scarcely recommend it in totally inexperienced hands.

There is a disease known as "grub in the head," of which the seat is not the brain, but the nostril, or nasal sinuses, and which is caused by the larvæ of the gadfly. The irritation consequent on the presence of this parasite is very great, but is not usually attended with cerebral symptoms, nor is the complaint commonly fatal.

Singular Local Disease.

To the Editor.

Sir,—There are a couple of farms in my neighbourhood on which every horse that is employed on them any length of time dies through the effects of a disease, stated by veterinary surgeons and others to be the "yellow water." Now, since there is a great diversity of opinion respecting the cause of the disease on these farms, many asserting that it is owing to the nature of the water, I wish you would give your opinion through the columns of your valuable journal respecting the causes of it, and state if it is infectious What means would you recommend to pursue as a preventive, and how would you treat the disease on the appearance of the first symptoms of attack? A SUBSCRIBER.

Nottawa, March 9th, 1870.

Reply.—The disease is produced, in all probability, from some obnoxious herb, or possibly impure water. We cannot think that the disease is infectious. "Yellow water" is such a vague term that it is impossible for us to form an opinion as to the nature of the malady. Perhaps fallowing, or green-cropping the land, and also dressing with lime, might improve the quality of the grasses, etc.

The Dairy.

Standard Butter and Cheese.

To the Editor.

Sir,—I send you the following extract from an English newspaper, and it would be well for our farmers to bear in mind that similar cases are not rare.

"Fancy Bread and Nasty Butter.—At the Sheffield Town Hall recently, a provision dealer named Charles Fielding, was summoned under a borough by-law, for being in possession of about 350 pounds of butter, which was in a nearly putrid state, the smell being worse than that of manure. The defendant, who does a very large business, did not deny that the butter was bad, but said that he generally sold it to confectioners, who made fancy bread, etc., with it. He denied that he retailed it in the shop, and said that he had for seventeen years sold it to confectioners at about nine pence psr pound. *It was Canadian butter*, and he had sometimes about 200 firkins (nearly 17,000 pounds) of it on his premises. The Bench commented on the case, and ultimately ordered the butter to be destroyed, and inflicted a fine of twenty shillings, the extreme penalty under the by-law."

It is incredible that all the bad butter this dealer sold was Canadian; in fact he could not have obtained it for seventeen years; yet such a statement leads many to infer that Canada really sends an immense quantity of this sort of stuff to the British market.

What are the facts? Of late years a large quantity of butter has been exported, and this has been of quite a mixed quality and value. Some has been good butter put in bad packages, which have either spoiled its keeping, or imparted bad flavours; some has been bad at first, and although put in proper wood, its value could not be increased. Some has been injured by too large a proportion of salt. But the larger part of the bad butter has never been thoroughly or properly worked; such may be said never to arrive at its destination in a wholesome condition.

It is certain a large quantity of this kind of produce is passed off as coming from wrong localities, and Canada is often made the scape-goat for bad butter, cheese, etc., that never even crossed the Atlantic. Let our farmers unite, in different localities, and what they have to spare of these articles make well, handle and pack carfully, and mark with distinctive brands—raise the standard, and in a short time their produce would be in request at greatly advanced rates. R.

A case of hydrophobia in a cow is reported in the *Farmer* (Scottish) of February 2nd. During the past few months, it is stated, many cases of the kind have occurred in the same neighbourhood (Alcomden, near Hebden Bridge) among pigs, cows, and horses, as well as among dogs and cats, and several instances of the disease in the human subject are also reported.

Feeding Dairy Cows.

At some of the Dairymen's Conventions that have been recently held in various places this matter has been discussed by different parties, and all seem to be impressed with the idea, as brought out by the relation of several actual experiences, that in order to obtain the largest amount of actual profit from cows kept for the sake of their product, in the form of butter and cheese, it is necessary to give them some extra feeding in the summer beyond what they obtain from the pastures. One told of expending $25 per head on his cows from March to November, over and above the value of their pasturage. During April and May he gave each cow a mixture composed of four quarts of corn and oatmeal, one quart oil meal, and eight quarts bran per day, in addition to hay. After they went to grass the meal and hay was left off, and twelve quarts of bran per day given. As soon as sowed corn was fit to cut for fodder, and the pastures began to dry up, he gave them cut fodder in addition. His cows gave an extra yield under this treatment of 200 pounds of cheese each over cows on pasture alone, and were besides quite fat at the end of the season, and so worth at least $10 per head over what they would have brought if in ordinary condition. So that for an investment of $25 each he realized $35 each, or $10 profit per head over what he would have had on pasture alone. Besides this, the extra feeding enabled him to keep forty cows on pasturage that without it could have kept but thirty-two, and this added to the profit made on the feed, gave him an extra profit of $755 over and above what he would have had without using the extra feeding. This matter of extra feeding of cows when at grass ought to obtain place with our best dairymen, and the actual results of even soiling the cows with corn fodder while at grass, would, no doubt, show largely in favour of the practice.

It was resolved at a meeting in Derby, England, February 18, convened by the Derbyshire Agricultural Society, to establish three cheese factories in the county on the American principle.

At a meeting of the Little Falls Farmers' Club, Mr. Willard said his observation led him to believe that it was better to have one large pasture than to alternate from one to another. The feed was more uniform and the result more satisfactory. It was thought that it would take in Herkimer county from one and a half to two acres of pasturage to keep one cow. In some very fine pasturage, an acre would suffice.

The cheese factory at the front of Sidney was built in 1866, and cost, including all apparatus, double sets of cans for each shareholder, and six spring wagons, the sum of $6,318. In 1866 the cows numbered 250, which increased in 1869 to 750. In 1866 the grass receipts were $9,980,04, and in 1869 they amounted to $23,422 34. The total amount of all the expenses is about two cents per pound of cheese. All the trouble the stockholders have in connection with the matter is to deliver the milk at the cow stables, and draw a check for their money at the close of the season.

Poultry Yard.

Golden Pheasants.

It is a commonly prevailing opinion that the Golden Pheasant is not a hardy bird—a mistaken idea. When I resided in Woodstock, Ct., I tested that thoroughly. All that is needed for their protection in winter is to have some clumps of evergreens in the lawn, say eight or ten feet in diameter. Under such cover my pheasants have remained all winter, being in perfect health. Towards morning, you will hear the Golden Pheasant cock begin to crow lustily, with a sharp loud crow, as much as to say, "We are all well." The latter end of April or beginning of May the female bird begins to lay. She will select her nest in some easy place, and lay from 14 to 19 eggs. She ought not to be disturbed or frightened off her nest; if so, she will drop her eggs anywhere about the enclosure. When she began to sit, I used to take the eggs and put them under a small bantam. They are twenty-four days coming off. When hatched out, take them with the bantam mother and put them in a square box; four boards nailed together, about four feet long and twelve inches high, will answer; let them fit close to the ground. Give them no food for twenty-four hours, then give them hard boiled egg, with lettuce chopped fine, varying the food: sometimes a little curd, breadcrumbs wet with a little sweet milk. The more varied their food and the more frequently renewed, the better. At two or three months old, feed them on barley, oat grits, etc

I have often thought—think so now—that a gentleman's lawn is not complete without these harmless pets. A neat wire fence, five feet high, is all that is required to keep them. Then they can have these beautiful birds in all their gorgeous colours.—*Cor. in Western Rural.*

Turkey Raising.

With many farmers, the raising of turkeys is a precarious business, owing to the tenderness of the young during the first month, or two months after they are hatched. Success in the management will depend much on the situation of a farm. A warm southern exposure for the farm buildings, and ample grounds for the young to exercise, without strolling too much in the wet grass, and warm places to retreat into in cold and wet stormy weather, are the chief requisites to succeed in raising a flock of turkeys. They will subsist on any of the different kinds of grain raised on the farm; it is only the manner of feeding which is important. They require to be fed little and often, and if the women folks will take an interest, there will seldom be a failure. Vermin should be carefully guarded against; by coming in contact with other poultry and having access to their houses, the young turkeys may become infested with

lice, which will be a great drawback to their growth, and perhaps cause a failure to raise a brood. For five years past I have discontinued keeping turkeys, finding them not very profitable when there were no conveniences to restrain them from committing depredations on the crops. But since I have no turkeys on the farm it has been sadly overrun with grasshoppers, and for two years past they have totally destroyed my turnip and ruta baga crops. I will try raising turkeys again, to see if it will rid me of the grasshoppers. Fifty turkeys roaming in the fields, in a week's time will destroy bushels of these pestiferous insects. If wild turkeys can be obtained and domesticated to cross with the common stock, it would improve the size and make them more robust to bear the rain and wet grass, and therefore more easily raised. By crossing the breed with wild turkeys, the progeny will be more of hunters of flies, bugs and other insects, and less inclined after grain, and of course more profitable. I saw in Mifflin County a domesticated wild turkey gobbler, a beautiful fowl, his colour brown and snuff, with plumage having a lustre and brilliancy almost equal to the peacock. The wild turkey gobblers do not come to maturity till they are about two years old; the one in question was a large noble bird, twelve months old, but had not commenced to gobble. Fifty of such gobblers as I raised years ago, to take to market the coming Christmas, would bring a handsome pile. I have had on my premises turkeys weighing as much as forty pounds. But turkey raising is attended with much trouble and care, and if not properly managed will be a losing concern, and were it not that I am so sadly harassed with grasshoppers, *nary* turkey should gobble on my farm.—*Cor. Journal of the Farm.*

Poultry Association.

To the Editor.

Sir,—At the meeting of the Board of Agriculture, on the 24th February, Professor Buckland proposed a grant to the Ontario Poultry Association.

Mr. Rykert opposed the motion on the ground that a good deal of complaint had been made respecting the exclusive character of the Association.

I should be obliged if he would also state by whom the complaint was made. As one of the original promoters of the Society in 1866, I shall be fully borne out by its members in saying that in the first instance we called it the Canada West Poultry Association, and when the Province, on the formation of the Dominion, became Ontario, the word Ontario was substituted for "Canada West." This was done, in both cases, to obviate any such idea as that now started by Mr. Rykert.

The membership is open to all. The competition is not restricted to any part of the world; but why the citizens of Toronto, who have *solely* contributed in a most liberal manner to the prize list and expenses of the four exhibitions that have been held, should do so for the amusement of other cities, it is difficult to understand.

I am safe in saying, I believe, that not one cent, exclusive of membership and entrance fees, has been gratuitously contributed towards the benefit of the Society outside of Toronto, except in one instance, when a distinguished exhibitor from Montreal returned his prize money as a donation to the Society. A circular was sent to individual members at the commencement of this year, asking for voluntary contributions towards the expense of a fifth exhibition. What was the result? Several prominent members from a distance requested their names to be erased from the Society's books; and to judge from the response received outside of Toronto, it would appear that if, as Mr. Rykert appears to wish, exhibitions are to be held at St. Catharines, Hamilton, and other cities, the $100 proposed as a grant will have to be multiplied by six to enable the plan to be carried out.

Towards the expenses of a show in April next some few—three or four—not in Toronto, have proposed to give; but I believe this is the first instance of the kind on record. If Mr. Rykert will examine the list of awards at the four exhibitions I think it will be seen that most of the exhibitors were not from Toronto, and that most prizes were sent elsewhere.

The constitution and records, and the uniform practice of the Association, will clearly prove to any unprejudiced person that there is really not the slightest ground for this most unfair charge of exclusiveness. It is the country that we aim to benefit, and to the country at large, without favour, the membership is open; and the fact of the exhibitions being hitherto confined to one place has been a matter purely of economy—indeed, of absolute necessity, on the ground of expense.

F. C. HASSARD.

The Nova Scotia Dog, Pigeon, and Poultry Club propose to hold a show in Halifax in June next, provided the requisite funds can be obtained. T. D. Almon, M. D., is the Secretary.

Change of Colour.—Mr. Andrew Russell, of Packenham, who has kept Black Spanish fowls for some years, was surprised to observe lately the plumage of one of his full-bred Spanish hens changing colour; she is now pure white.

Influence of Railroads on the Hatching of Eggs.—A peculiar effect of the proximity of railroads on the hatching of eggs has been mentioned in various papers. It has been found that there are scarcely any chickens raised in poultry yards which are situated in the immediate neighbourhood of the rails of a much frequented railroad. This fact is supposed to result from the earthquake-like trembling shaking the soil caused by passing trains, which exert an unfavourable influence on the eggs.—*Ex.*

Entomology.

Imported Insects and Native American Insects.

If we examine into the history of the imported Currant Worm and the native Currant Worm, we shall find a very curious state of things. These two insects both produce sawflies, which are so closely allied to each other, that although they are referred to distinct genera by entomologists, it may be doubted whether the genus (*Pristiphora*) under which the native species is classified be not a mere subgenus of that under which the imported species is classified. Reasoning *a priori*, therefore, we should expect to find a very great similarity in the destructive powers of these two worms, especially as each of them infests the leaves both of the red currant and of the gooseberry. But what are the actual facts? On the one hand we see a Native American species, which must have existed here from time immemorial, feeding on our wild gooseberries and perhaps on our wild red currant, and which yet has troubled our cultivated gooseberries and red currants so very slightly, that it cannot be proved with absolute certainty to have ever done so at all, except in Rock Island County, Illinois, and in Scott County, Iowa.

On the other hand we see a species, only introduced into this country from Europe some twelve years ago, which has already almost put a stop to the cultivation of the gooseberry and red currant throughout a large part of the State of New York, the northern borders of Pennsylvania, and the whole of Canada West, and is slowly but surely extending itself in all directions from the point where it was originally imported. What can be the reason of such a wide difference in the noxious powers of two such closely allied insects, feeding on exactly the same plants, but one of them indigenous to America and the other imported into America from Europe? Nor is this the only case of the kind. We can point out at least three other such cases. The imported Onion-fly (*Anthomyia ceparum*), is a terrible pest to the onion grower in the east, though it has not made its way out west. On the other hand, the native American Onion-fly (*Ortalis arcuata*, Walker), which is a closely allied species, and has almost exactly the same habits, has only been heard of in one or two circumscribed localities in the West, and even there does but comparatively little damage. Again, the imported Oyster-shell Bark-louse (*Aspidiotus conchiformis*) is a far worse foe to the apple and certain other fruit trees than our indigenous Harris's Bark-louse (*Asp. Harrisii*), though each of them infests the same species. Finally, the imported Meal-worm Beetle (*Tenebrio molitor*) swarms throughout the whole United States, and is a great pest, while the native American species

(*Tenebrio obscurus*), which has almost exactly the same habits, belongs to the same genus and is of very nearly the same size, shape and colour, is comparatively quite rare among us, and is scarcely known to our millers and flour-dealers.

On a careful and close examination, it will be found that almost all our worst insect foes have been imported among us from the other side of the Atlantic. The Hessian Fly was imported almost ninety years ago, the Wheat Midge about half as long ago; the Bee Moth at the beginning of the present century; the Codling Moth, the Cabbage Tinea, the Borer of the red currant, the Oyster-shell Bark-louse, the Grain Plant-louse, the Cabbage Plant-louse, the Currant Plant-louse, the Apple-tree Plant-louse, the Pear-tree Flea-louse, the Cheese Maggot, the common Meal-worm, the Grain Weevil, the House Fly, the Leaf-beetle of the Elm, the Cockroach, the Croton Bug, and the different Carpet, Clothes and Fur Moths, at periods which cannot be definitely fixed. Even within the last few years the Asparagus beetle has become naturalized in New York and New Jersey, whence it will, no doubt, spread gradually westward through the whole United States, while the Rape Butterfly was introduced about a dozen years ago, and is rapidly spreading over some of the Eastern States. And only a year ago the larva of a certain Owlet Moth (*Hypogymna dispar*), which is a great pest in Europe both to fruit trees and forest trees, was accidentally introduced by a Massachusetts entomologist into New England, where it is spreading with great rapidity. It is just the same thing with plants as with insects. We have looked carefully through Gray's *Manual of Botany*, and we find that—excluding from consideration all cryptograms, and all doubtful cases, and all cases where the same plant is supposed to be indigenous on both sides of the Atlantic—no less than TWO HUNDRED AND THIRTY-THREE distinct species of plants have been imported among us from the Old World, all of which have now run wild here, and many of which are the worst and most pernicious weeds that we have to contend against. In the *U. S. Agricultural Report* for 1865, pp. 510-519, will be found a list of 99 of the principal "Weeds of American Agriculture," by the late Dr. Wm. Darlington. Of this whole number no less than 43, or nearly one half, are species that have been introduced among us from the Old World. Among these we may enumerate here, as the best known and the most pernicious, Buttercups (two species), Shepherd's Purse, Saint John's Wort, Cow-cockle, Mayweed or Dog-fennel, Ox-eye Daisy, common Thistle, Canada Thistle, Burdock, Plaintain, Mullein, Toad Flax, Bindweed, Jamestown (Jimson) weed, Lamb's Quarter, Smartweed, Field Garlic, Foxtail Grass and the notorious Cheat or Chess. And to these we may add the common Purslane, which through some strange oversight has been omitted in Dr. Darlington's catalogue.

It will be supposed, perhaps, since there are about as many voyages made from America to Europe as from Europe to America, that we have fully reciprocated to our transatlantic brethren the favours which they have conferred upon us in the way of noxious insects and noxious weeds. It is no such thing. There are but very few American insects that have become naturalized in Europe, and even these do not appear for the most part to do any serious damage there For example, on one or two occasions, single specimens of our Army Worm Moth (*Leucania unipuncta*) have been captured in England, but the insect has never spread and become ruinously common there, as it continually in particular seasons does in America. Our destructive Pea Bug (*Bruchus pisi*) has also found its way to Europe, but although it is met with in England, and according to Curtis has become naturalized in the warmer departments of France, Kirby and Spence expressly state that it does not occur in England "to any very injurious extent," and Kirby seems to doubt the fact of its being naturalized in England at all Again, the only species of white ant that exists within the limits of the United States (*Termes frontalis*) has been known for a long time to be a guest at the Plant-houses of Schonbrunn in Germany, but it is not recorded to have ever as yet spread into the surrounding country. As to our American Meal-worm (*Tenebrio obscurus*), Curtis states that it has been introduced into England along with American flour, and that it is sometimes abundant in London and the provinces; but Kirby and Spence say not one word about it, and it seems to be confined to the English seaports and the places where American flour is stored, without spreading into the adjacent districts.

A very minute yellow ant, however (*Myrmica molesta*), which is often very troublesome with us in houses, has, according to Frederick Smith, "become generally distributed and naturalized" in houses in England; and Kirby and Spence state more specifically that "it has become a great pest in many houses in Brighton, London and Liverpool, in some cases to so great an extent as to cause the occupants to leave them." As to our Chinch Bug, our Curculio, our Plum Gouger, our two principal Apple Tree Borers, our Canker Worm, our Apple-tree Tent Caterpillar, our Fall Web Worm, our Peach-tree Borer, and our other indigenous pests among the great army of Bad Bugs, nobody ever yet found a single one of them alive and kicking on the other side of the Atlantic. And with regard to plants, the only two American plants that we know to have become so firmly established in Europe as to be a nuisance there, are an American aquatic plant, the common Water Weed (*Anacharsis canadensis*), which has choked up many of the canals in England; and our common Horse Weed, (*Erigeon Canadens*) which has spread from America nearly over the whole world.—*American Entomologist.*

The Pea Weevil.

To the Editor.

Sir,—Mr. Wm. Langdon, of Brighton township, handed me the enclosed peas, with the request that I would send them to you, as each pea contains what has been thought a curiosity by all to whom they have been shown.

As we are readers of your journal, if you will give in it a description of the insect that is enclosed in each pea, telling its name, when and how it got into the pea, as the insect is perfectly developed in the pea, and yet the skin of the pea is not broken, you will oblige. Is the specimen sent the pea bug, that makes the raising of peas in the State of New York, and some other places, almost a total failure? By giving the information sought in your journal you will answer at once a great many enquiries and oblige many of your readers in this section.

Castleton. DARIUS CROULER,

a, perfect beetle; *b*, larva—both greatly magnified; the accompanying outlines representing the natural size; *c*, infested pea.

Note by Ed.—The peas sent us by our correspondent contain specimens of the Pea Weevil (*Bruchus pisi*). On each pea may be observed a slightly discoloured round spot, which is found on inspection to be caused by a hole in the pea, under the thin hull, containing a small blackish beetle. It certainly at first sight appears strange how the perfectly developed beetle can have got into the pea when the skin is entirely unbroken, but a little insight into the history of the creature explains the seeming mystery. When the peas are in blossom, the parent beetle lays its eggs in the tender pod. From these hatch out tiny little worms, which perforate and enter into the soft newly-developed peas, making a very minute hole, which speedily closes up with the growth of the pea. The worm grows as the pea increases, eating away at the mealy part of it, and usually sparing the germ, till at length it assumes the pupa state, and finally, when the pea ripens, completes its transformation into a perfect beetle. Here it remains, with only the thin epidermis between it and the outer air and liberty, all winter, till the warmth of spring bids it eat through the husk and perform its proper avocations.

It is not long since we gave a brief account

of this creature, in acknowledgment of a number of specimens sent us from Quebec. It is needless, therefore, for us to enlarge farther upon its history.

The following remedies may be mentioned:— Keep the infested peas in tight vessels over one season; that is to say, instead of sowing the produce of last year's crop this spring, keep them till next year. The weevils will soon come out with the increasing warmth, and finding no escape, will die in the vessel before the end of the year; and thus the peas will be free from their attack. Another mode is to dip the peas in boiling water just long enough to kill the beetles, but not destroy the germ. *One minute* is sufficient.

Scavenger Beetles.

In our last article upon insects that are beneficial to mankind, or that are at least of so harmless a character that they should be spared from the universal sentence of death too often passed upon the race, we gave an account of the families whose agreeable occupation it is to act as sextons for the smaller animals, or otherwise dispose of carrion. The next tribes of beetles that come within our present range of observation, discharge a somewhat similar office in the domain of nature, and busy themselves in the removal of nuisances from the surface of the earth.

To quote the words of Kirby and Spence (*Introduction*, Letter IX.),—"How disgusting to the eye, how offensive to the smell, would be the whole face of nature, were the vast quantity of excrement daily falling to the earth from the various animals which inhabit it, suffered to remain until gradually dissolved by the rain, or decomposed by the elements! That it does not thus offend us, we are indebted to an inconceivable host of insects which attack it the moment it falls; some immediately begin to devour it, others depositing in it eggs from which are soon hatched larvæ that concur in the same office with tenfold voracity; and thus every particle of dung, at least of the most offensive kinds, speedily swarms with inhabitants which consume all the liquid and noisome particles, leaving nothing but the undigested remains, that soon dry, and are scattered by the winds, while the grass upon which it rested, no longer smothered by an impenetrable mass, springs up with increased vigour." The insects that engage in this work belong to many different tribes, chiefly pertaining to the orders of Beetles and Flies (*Diptera*). A large proportion of the former come in natural sequence almost immediately after the Carrion Beetles already described, and may, therefore, be fitly reviewed here. To give a complete account of all the different families of beetles that belong to the hordes of scavengers, would be a long, and—to the general reader—by no means an interesting proceeding; we shall, therefore, content ourselves with describing the peculiarities in structure and habits of the common sorts.

The first, and most numerous family, that we come to, includes all those species of beetles called in England Rove-beetles, or Cock-tails (*Staphylinidæ*). They are readily distinguished from all the other families by their peculiarly long and narrow bodies, flattened form, and very short wing covers, which only cover one or two segments of the abdomen, instead of almost the whole of it, as is the general rule with beetles. These short wing-covers give the insect somewhat the appearance of wearing a boy's short jacket, instead of a long coat; notwithstanding their brevity, however, they completely conceal and keep out of the way the ample membranous wings, which, when not in use for flight, are beautifully tucked away beneath them. The long uncovered abdomen is capable of being moved in different directions, and is employed by the creature in folding and unfolding its wings. When irritated or alarmed it cocks its tail over its back, and assumes a ludicrously threatening aspect; it also possesses the power, probably for defence, of protruding at will two vesicles from the extremity of the abdomen, which emit a very unpleasant, and sometimes indescribably fetid odour.

The chief food of these insects, both in the larval and perfect states, consists of decaying animal and vegetable matters; in early summer every piece of dung that falls to the earth speedily swarms with them, and in the autumn they are equally numerous in fungi, agarics, etc. Some species are also carnivorous, feeding upon other insects; in England a large species, commonly called the Devil's Coach Horse (*Goerius olens*) devours large numbers of the destructive ear-wig (*Forficula*); "On the least approach of danger," Westwood relates, "this insect, like the rest of the group, immediately puts itself into a most ferocious-looking posture of defence, throwing the tail over the head like a scorpion, protruding the anal vesicles, elevating its head, and widely opening its long and powerful jaws."

Upwards of four hundred species of this family of beetles are found in North America, and of these, one hundred and five species have been taken in Canada. Many more undoubtedly remain to be found and described when collectors pay more attention to the minuter forms of insect life. Eight hundred species have been described as found in England alone. In tropical climates they are very rare; their places as insect-scavengers being supplied by the excessively abundant ants and termites.

Look Out for the Colorado Potato Beetle!

The potato growers in the extreme western part of Canada must not be surprised if they find a new and most destructive insect appearing upon their plants this year. The hosts of the terrible Colorado Potato Beetle (*Doryphora 10-lineata*, Say) are steadily marching on in their journey from the Rocky Mountains to the Atlantic Ocean; they have already made their way into the neighbouring State of Michigan, and either this summer or next we may expect to hear of their invading our shores along the River St. Clair. Should this insect obtain a footing in our country, we can assure our readers in all earnestness that they will find it a far more grievous nuisance than any horde of Fenians with which we have ever yet been threatened, or are likely to be troubled with; the ravages of this small foe would undoubtedly prove a far greater source of pecuniary loss and inconvenience to the whole country than any raid of these barbarous ruffians. To be "forewarned" is, to a great extent, to be "forearmed;" let us then be on the look-out for these creatures, and be prepared to repel their attacks whenever they begin to advance upon our land. Kill every one that comes, and show them no mercy, is our advice to our readers; do not wait till they get a foothold in the country, but destroy them immediately upon their arrival; and let those who live along the St. Clair keep a good look-out for their appearance.

The history of this insect is rather a curious one. For many years it was known to feed upon a wild species of potato, peculiar to the Rocky Mountain region; but when civilization, and the consequent culture of the tuber, advanced so far westward, it soon acquired a taste for the cultivated varieties, until in 1859, by advancing eastward from one potato patch to another, it reached a point one hundred miles west of Omaha, in Nebraska. In 1861 it began to appear in Iowa; in 1864 and '65 it crossed the Mississippi River, and invaded the State of Illinois. At that time the late Mr. Walsh predicted (*Practical Entomologist*, vol. 1) that it would in all probability "travel onwards to the Atlantic, establishing a permanent colony wherever it goes, and pushing eastward at the rate of about fifty miles a year." This prediction has, so far, been fulfilled in a remarkable manner; in 1866 it invaded Southern Illinois; in 1867 it passed into Western Indiana and the south-west corner of Michigan; in 1868 it had reached Ohio, and the south shore of Lake Superior in the north-western corner of Michigan; last year it went over a great portion of that State, and therefore this year we may expect it in Canada.

This insect when seen in a cabinet is a very beautiful creature; its body is cream-colored, its wings of a bright rose color, and its wing-covers are adorned with five deep black stripes. Farmers and gardeners, however, whose potato crops are blasted by it, do not usually discern its beauties, but consign it to speedy and unhesitating destruction. It feeds upon the plants in both its larval and perfect states, driving everything before it. Should any of our readers have the ill-fortune to find it in their fields this year, we beg that they will send us some specimens, in order that we may give a further and illustrated description of them.

Potato Beetle.

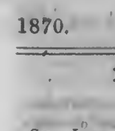
To the Editor.

Sir,—In an article on the Colorado Potato Beetle you give an interesting history of that destructive insect, and caution gardeners and farmers, (and I am a little of both) to be on the lookout this year for this new pest, an enemy to the potatoes. I live four miles to the east of Guelph, close to the Grand Trunk Railway, and, if I mistake not, the beetle you describe at the end of your article was here last July in hundreds on my potatoes; on a hot day somewhere about that time, I was hoeing my Early Goodrich Potatoes, and saw a few strangers, to me, of the beetle tribe on the leaves of the potatoes which were very rank; and just at the time they were coming into bloom I was at work amongst them again, and that was on a hot day too, (I try to kill weeds on such days), these gay beetles were pretty numerous, both on the potatoes and flying about, and I was particularly struck, both by their *beauty* and their *numbers*, and thought at the time that they meant no good.

I have nothing to guide me, but the enclosed sketch is, according to the best of my recollection, something about his size, and it struck me when they were on the green leaf, that they were black and white, and when on the wing, pink looking; and, unlike some other beetles, they are easily killed by the finger and thumb, for I did kill a good many in pairs, male and female; but I did not observe that they injured my crop, and I saw none afterwards. L.

Eramosa, Ont.

Note by Ed.—The specimens observed by our correspondent on his potatoes, judging from his description and sketch, belonged to the species called the "Three-lined Potato-beetle" (*Lema trilineata*, Oliv.). The annexed wood-cut represents the insect a good deal magnified. This is a very common species in Canada, and occasionally becomes rather destructive. The Colorado Beetle is much broader and rounder in form, as well as a good deal larger, and may be recognized by its *ten* dark stripes on the wing-covers, five on each; whereas, our insect has only *three* black stripes; one down the middle, and one on each side. The Colorado Beetle could hardly have travelled as far east as Guelph without having been observed by some of our entomologists.



Live Beetles.

"A young beginner," residing in the township of Waterloo, has sent us some lively specimens of beetles that we should hardly have expected him to meet with at this time of year. The sight of them immensely delighted our entomological eyes, that have gazed upon few living specimens of insects for some months past, the more especially as everything about us is just now covered with a couple of feet of snow, and the prospect of a "beetle hunt" is obscured by the haze of the apparently far distant future.

The specimens belong to three distinct species. (1). A long, slender Capricorn beetle (*Toxotus decoloratus*, Harris), about an inch in length, and with antennæ but little shorter than the body, of a pale drab colour, with shining reddish head, thorax, legs, and antennæ. This rare beetle our correspondent found in a "damaged birch tree," the wood of which, no doubt, served its larva for food. It belongs to a family whose numerous members are all wood-borers, but we believe that no one has hitherto discovered what particular tree this species attacks.

(2). A shining, deep chestnut-brown beetle, about half an inch long, belonging to the same family, and much resembling the only too common Meal-worm (*Tenebrio molitor*, Linn.). It is a species of *Uloma*, the members of which feed upon decayed wood, and also upon wheat, flour, etc. The specimen sent us, our correspondent found "in a decayed beech tree."

(3). Two specimens, male and female, of a small species of Stag-beetle (*Ceruchus piceus*, Weber). These insects are about half an inch in length, of a pitchy-black colour; the male is remarkable for his highly developed jaws, which are longer than his head, and furnished with two large teeth apiece, giving him a very formidable appearance. Some species of this family are of very large size, and furnished, in the males, with enormous toothed jaws, somewhat resembling the branched antlers of a stag, whence their common English name. Most of the species, including the one before us, feed upon the juices of decaying wood, and cannot be considered injurious. The large Stag-beetle of Europe (*Lucanus*) causes, however, much damage to the Willow and Oak, boring into the solid wood and also into the roots of the tree.

We must commend our correspondent's careful packing of these specimens; the little box, scooped out of a block of wood, in which they were enclosed, would defy the "stamping" of even the most energetic postmaster. We must also congratulate him upon his success in obtaining such good and rare specimens for a beginning; we hope that he will continue the pursuit, which he will find attended with much unalloyed pleasure.

A Cheap Grubkiller.—Dissolve a coffee-cup full of salt in hot water, then put into a common sized watering pan, and fill up with cold water. Just give each plant a gentle switch over with this mixture, and they will disappear in a moment, and the salt and water will nourish the plants wonderfully. All greens are fond of salt and water. Some people would be afraid of killing their cauliflowers; but it must be borne in mind that the salt and water will not penetrate the leaves. It runs off to the roots, killing every caterpillar in its way.—*Gardener's Magazine.*

Correspondence.

Which Kind of Barley Shall We Sow?

To the Editor.

Sir,—It appears to be of rather unusual importance, just now, to arrive at correct conclusions in reference to the above question. I believe that in attempting to do so it is necessary to consider the merits of two kinds only of barley—the six-rowed and the two-rowed—the four-rowed being little known in Canada and the States.

The six-rowed is by far more largely cultivated in both countries than the two-rowed, but the two-rowed is the favourite with the malsters and brewers in Great Britain, and is, in the experience of many farmers here, the more profitable crop, and, unquestionably is the finer, plumper, heavier grain. If, therefore, our choice is to be governed by the intrinsic comparative merits of the two varieties, there can be no difficulty in deciding upon the two-rowed. One thing is certain, it is becoming an absolute necessity to decide upon one or other of them for general adoption; for, as in the process of malting there is a difference of several days in the period at which the two varieties sprout, and as the merchants are unwilling or unable to provide separate accomodation for each sort, it follows that the two kinds are huddled together into one general receptacle, and that the malting process becomes one of confusion, embarrassment and loss.

The merchants appear to agree in the opinion that the two-rowed is the superior grain, and that the desirable thing is to get it generally adopted; but they are becoming urgent for the universal adoption of one of them.

The present mercantile view of the question is thus put by the *Albany Journal*:—"Six-rowed has been the favourite with malsters here this season. In this connection we would state that farmers would find it to their benefit, in their selection of seed this spring, to buy six-rowed 'Canada West.' Six-rowed must supersede two-rowed, for even this season it has commanded twenty-five cents more than the two-rowed."

Now, this writer may be correct enough about the present commercial values of the two kinds of barley, but I very much question if he knows anything about the grain beyond its present relations to the market, which may soon be reversed.

Shall we, then, unite with the increasing numbers of those who are anxious to promote the adoption of the beautiful two-rowed barley; or shall we at once yield to the present (perhaps only momentary) mercantile view of the case, and sow six-rowed?

DANIEL D. SLADE.

Oshawa, March 9, 1870.

Barn.—We will attend as soon as possible, though we cannot do so at once, to our correspondent's request, and give a plan shortly.

"Name! Name!"

To the Editor.

Sir,—Will you allow me the use of your columns to give a few homely words of advice to my brother farmers. I would say to them, one and all: Unfurl your bunting; spread your banner; exhibit your sign, and let the rest of the world know where you live.

I am led to take up this matter from seeing in your columns so many fictitious names to really good articles, written by those who have evidently practical experience of the subjects on which they write. Now, the withholding the name deprives the reader of a considerable part of the advantage and worth of the article. For instance, a writer some time ago gave an account of his experience with a variety of potatoes, some of which I had never tried, and I should have been glad to have applied to him for seed had I known his address. The man who writes a good article, and signs no name or a fictitious one, resembles him condemned in Scripture who "puts his candle under a bushel."

By all means let us have these communications from practical men and veritable farmers, but let each writer sign his own name, and give his post office address. I would further advise every one to mark everything that belongs to him—his waggons, sleighs, carts, bags, &c., and above all the rest, his gate or gate posts, as a guide to those who wish to see him. This custom would save many a vexatious, fruitless journey, and would maybe bring the farmer a welcome caller or customer, that would have been lost to him without the precaution. The name on the waggon or carriage would be a capital advertisement, the value of which all men of business know well and do not forget to take advantage of, and those who wished to see the proprietor would hunt him up. Try it, farmers. A. B. BROWNSON.

Bayfield, Ontario.

Note by Ed.—We always like, and indeed require, the names of correspondents, as evidence of good faith; but it is optional with the writer to have it published. No doubt, to the reader there are advantages in giving the name, and the article will often in consequence be perused with greater interest, and have greater weight. But there is one abuse of the practice against which we must take occasion to protest, and that is, making use of our literary columns for gratuitous advertisements. When a person has anything he wishes to bring before the public for sale, let it be agricultural produce, implements, or merchandise of any kind, it is not fair to expect a gratuitous insertion of a letter or article containing the information, and the vendor's name and address, along with the ordinary reading matter of the journal. The place for such communications is the advertising columns, and the price for their insertion the ordinary advertising rates.

Weather, Hay and Grain in Hastings.

To the Editor.

Sir,—We are, at this date, literally snow-bound—a universe of sky and snow. Fences invisible; windows almost hidden; trees covered as high as their branches. Still, we will not complain, this is a blessing in disguise, a mantle thrown over the bosom of mother earth, cherishing her offspring. Underneath this veil are the fair features of youth and promise.

The crop of clover seed in this vicinity is nearly all thrashed and marketed. The yield here is light, the seed inferior compared with other seasons. The wet season promoted the growth of stalk, leaf, and blossom, at the expense of the seed. In clays and calcareous soils the yield was better. It is proving a remunerative crop, though some contend that it, i. e., the seed growing, exhausts the soil. A very wet season favours the advantage to be derived from plaster, owing, no doubt, to the attraction of that absorbent for moisture.

There is an abundance of hay in the country, it is difficult to find market for it. I think it would pay to press and bale it for some foreign market, or to be held over for a year of scarcity, or better, convert it into beef and mutton. There seems to be great need of a change in the varieties of grain grown here. There is not as good a yield of spring wheat as there should be, especially "Fife." While there is a mania for new and extraordinary potatoes and oats, we hear very little of spring wheat.

J. M. LE BOUTILLIER.

Sidney, March 17th, 1870.

Capacity of a Root Cellar.

C. R. wishes to know what space he must provide in building a root cellar for storing turnips, or how much to allow for a bushel of the roots.

It will be sufficiently accurate for this purpose if he calculates one cubic foot and two-thirds (1⅔) for each bushel, or 16⅔ feet (in decimals about 16.66) for every ten bushels. An easy way of reckoning is to use the rule for measuring corn in the ear, which is as follows: Measure the length, width, and depth of the crib in feet; multiply these three dimensions together, and the product by 4; cut off the last right-hand figure; those to the left express the number of bushels of corn if the ears were shelled. Add one-half this amount, and you will have about the quantity of bushels of turnips in the same space. For example, suppose a space of 10 ft. x 20 ft. x 8 ft=1,600 ft. Multiply by 4=6,400. Cut off the right-hand figure, leaving 640—the number of bushels of shelled corn. Add half this. 640 and 320 make 960, which would be about the number of bushels of turnips to allow for the same space.

Plaster of Paris.

A subscriber asks, "what benefit is Plaster of Paris to clay land, or land that overlies a bed of plaster? how used, in raw pulverized state, or burnt? and in what manner is it applied to the land? what effect on light and sandy soils?"

Ans. by Ed.—In the Canada Farmer of Feb. 7th, 1869, will be found an editorial on this subject, from which it will be seen that the chief value of plaster is as a stimulative manure to clover. It is the sulphuric acid contained in plaster that renders it valuable for clover.

It makes little difference as to the soil on which it is applied, provided the object is to benefit the clover crop. Its manurial value on clay lands would not be equal to that of lime, except for clover alone; nor does it, as a general rule, pay to use it as a manure for any other crop than clover, except perhaps when it is applied to the young plants of Indian corn, which is commonly done at the rate of a handful to each hill.

It is always burnt before being ground, and is applied by scattering broadcast over the land, by hand, in much the same way as sowing grain, the usual allowance being from 100 to 200 pounds per acre, according as the clover is thick or otherwise; the thicker and heavier the ground is covered with clover, the more plaster is needed.

Broom Corn.

To the Editor.

Sir,—In a recent issue of your journal, John W. Smook asks if broom corn can be grown successfully in the vicinity of Hamilton. It may be interesting to him and others to learn that I grew it here in Ramsay, of good quality, fifteen years ago, and found that it would ripen in an ordinary summer before the fall frosts could hurt it, so I should conclude that it would do still better in the vicinity of Hamilton, which is some hundreds of miles nearer the equatorial belt.

WM. PATERSON.

Ramsay, Ont.

Clearing Land by Steam.

To the Editor.

Sir,—Some of your readers interested in effective farm machinery will no doubt be gratified to learn that an experiment in drawing stumps by ordinary steam ploughing engines, just tried in England, has met with complete success, and in consequence some hundreds of acres of waste land will be brought into use. These were a few years since covered with Scotch firs, 12 to 20 inches in diameter. Attempts to clear the land of the stumps had failed, from the expenses incurred. An agricultural engineer being applied to, however, contracted to clear and plough the land, set to work two of Fowler's 14 horse power winding engines, and the stumps were easily extracted at the rate of one per minute, two smaller engines being employed to draw away the roots into heaps. A six-furrow plough stood ready to turn over the land as soon as a sufficiently level surface had been made, which would readily be done by the steam cultivator or harrow.

Will not some of our capitalists, or even Government, try the same here? Would it not pay, and pay well? Might not a few acres thus cleared on wild lands render the lots more saleable, and divert hither some of the emigration now tending to the States?

R.

Sugar Beet.—Mr. C. Loyd is referred to the article on this subject in the March number of the Canada Farmer.

Chinese Yams.—Several correspondents have written to enquire where they can procure tubers of this esculent for seed. They can now be had of Prince & Co., Flushing, N. Y., for $3 00 per hundred.

Chemicals.—"Nemo," writing from Quebec, wishes to know if there is a market in Canada for certain chemicals produced "from wood boiling," and what are the respective prices. We are informed by the leading wholesale druggists that there is here very little demand for them, and that the following are the prices: Sugar of lead, 15 cents per pound; acetic acid, 12 to 14 cents; acetate of lime, 6 cents; naptha, 12 cents; charcoal, 12 to 14 cents per bushel in lump, 20 cents crushed.

Drainage Act.—A correspondent wishes us to publish the Ontario Drainage Act; but as the details of the statute have already been given in the Globe, and as copies of the Act have been sent to the reeves of townships, and other officials throughout the Province, so that any one may have an opportunity of reading it for himself, it seems undesirable to republish the whole in these columns. But we shall be happy to answer, to the best of our ability, any questions in reference to special points about which correspondents may desire information.

Wind Power for Farm Use.—A correspondent wishes information concerning a description of windmill adapted for farmers' use in sawing wood, cutting fodder, etc, etc. There are many such mills manufactured in the United States, and they are extensively used on the prairies, where the wind has great away, and consequent power. It may be doubted whether such will answer here in Canada, except in very exposed situations. Farmers are usually so situated near woods that the wind passes high above them, and a very tall mill would be required to be of any use. There are, however, localities where such mills may be used to advantage, and our correspondent is recommended to apply to any of the windmill makers, who usually advertise in American papers, before attempting a home-made contrivance, which, from want of experience, may fail.

Canadian Herd Book.—A correspondent enquires whether a second volume of the Canadian Shorthorn Herd Book will be published shortly. We understand that early next year, or sooner should a sufficient number of entries be made, the second volume will make its appearance.

Crushing Bones for Manure.—One of our correspondents wishes to know the best way to crush bones on a small scale. The usual course adopted is to erect strong fluted rollers, so constructed that a succession of points come in contact with the bones, thereby exposing them to an immense pressure as the roller rotates. After being once crushed thus coarsely, the bones are passed through a finer set of rollers with smaller teeth or points mashing into each other; and when thus crushed into about half-inch size, the dust is sifted out, and the uncrushed portions passed through stones and ground like gypsum or plaster. Bones, to be at all efficient as manure the first or second year, must be ground very fine, the finer the better. Half-inch bones will remain many months in the earth without decomposition, and consequently the farmer using them often feels much disappointed in the utility he expected he should have derived from their use. Bones of half inch size are better adapted for those situations and uses in which advantage is sought from a very gradual decay, such as vine borders or the like. The process sometimes adopted, of pounding the bones, is altogether less efficient than the crushing action of properly constructed rollers.

The Canada Farmer.

TORONTO, CANADA, APRIL 15, 1870.

The Provincial Association.

At the last meeting of the Council of the Agricultural and Arts Association an animated discussion and somewhat warm expression of feeling were elicited by a communication from the Minister of Agriculture, reflecting on the expensive management of the Association, and proposing certain measures with the view of reducing this expenditure, suggesting, among other things, that the present Agricultural Hall should be sold, and the library and offices removed to the Parliament Buildings. This proposition, though ostensibly one of economy, was regarded as, in reality, the first step in a scheme to bring the Association and the Council under the more direct control of the Bureau of Agriculture, and as such was emphatically and almost unanimously protested against, though the further discussion and final decision of the Council on the matter were postponed to the next meeting.

We sincerely trust that the complete independence of the Association will be carefully preserved. Whatever errors there may have been in the past management of the funds or general business, the fault must rest with the farmers throughout the country if in future the management is not what it should be. They have the matter now in their own hands, and have only to elect to the Council competent men who will faithfully discharge their duties, to secure the just and efficient administration of its affairs. Whereas, if the control of such a valuable public institution should pass into the hands of Government, the probability is, let who will be in power, that its interests will suffer. The Minister of Agriculture for the time being will have received his appointment from political and party considerations, and will in all likelihood be totally ignorant of agriculture, and the wants of that large class of the people who are engaged in agricultural pursuits. Or should he, by any singular good fortune, be a fit man for the position, his tenure of office may at any time expire, and his good intentions prove abortive. The men whom the farmers, through the agricultural societies, elect to the Council of the Association will, on the other hand, be the *elite* of their own class, every way well qualified to represent their views and advance their interests. The well-being of the Provincial Association must assuredly be safer in such responsible hands than in those of the Government Bureau. This is the feeling, no doubt, of the agriculturists generally; they have confidence in the present members of the Council, and if that confidence should be misplaced, the elective constitution of the Board and limited tenure of office leave the remedy where it should be, in the power of the farmers themselves.

The Farmers and the Protectionists.

One of the shrewdest acts of the would-be "Canadian monopolists" has been their cunning device to draw the farmers into their net. Though the Protectionist orators of Toronto, while addressing a city audience, could only style men engaging in agricultural pursuits as "hewers of wood and drawers of water" as compared with those in the higher walks of life pursued by the operators in factories, still, before the farmer, they have another story to tell, and strive to gain his consent to their schemes by promising him Protection in the shape of a duty on foreign breadstuffs. Now, did it ever occur to the farmer how

much such protection would amount to, and what he would gain by it? Look at it even from the standpoint of the rankest Protectionist. Take flour for example. Against some $2,069,274 worth which we have imported from the United States, we have exported to the United States about $10,000,000 worth. Shut out $2,000,000 worth, and we still export to the value of $8,000,000 more than we consume. Now, if we did not produce enough flour for our own consumption, there would be a possibility of advancing the price of what we have by putting a protective duty on foreign produce; but so long as we export $8,000,000 worth it is the world's market and not that of the Dominion that must fix our prices. In other words, the Dominion not being able to control the world's market, the world will control the Dominion's. In the meantime, however, the duty on breadstuffs will have answered the purpose of the Protectionists in opening the door for class legislation, and schemers of all classes will be clamouring for Protection. Coal will be protected, cotton will be protected, woollen goods will be protected, this thing will be protected, and that thing will be protected, till the unfortunate farmer who holds the key—the balance of power—and who, in hope of gain opened the door, will find that himself and his interests have been completely trampled under foot and forgotten by the eager throng who are rushing in through it. His cost of living will be doubled or trebled. Every yard of cloth he uses, every farming implement he needs, every pound of nails he buys, in short everything he consumes, save that which he has to sell, will cost him twice or thrice as much as it formerly did. He will no longer be able to go into the markets of the world to supply his wants, but he must pay just what the monopolists of his own country choose to ask. Where is his refuge? He is "protected," not a bushel of grain can come into Canada without paying a heavy duty; but what does this avail him, when Canada cannot use all his grain, and he has to sell in markets where he is not allowed to buy, and where no protection can reach. His position is simply this. He is compelled to buy all his manufactures at inflated prices, while he has to sell at natural figures. It is as though we had a currency some twenty or thirty per cent. below par, in which the farmer must receive his pay for his produce, while he is compelled to pay gold for everything he has to buy for home consumption. Our inflation of prices for everything manufactured in the Dominion having cut down the purchasing power of gold, the farmer who would be compelled to purchase within the Dominion and sell outside of it would not need to be very acute to see that he was being grossly swindled by the workings of Protection.

Agriculture is, to use a common-place expression, the backbone of a new country like ours; it is the occupation of the masses, and to attempt to regulate its produce to the consumption of the people, would be as impossible as to regulate the supply of light and air. With manufactures, however, the case is different. Give a ring of manufacturing monopolists Protection, and they can wring from a country its last surplus dollar, without adding in the smallest degree to the welfare of any but themselves. The farmer with his outflowing produce brings in the gold of foreign countries, while the greedy monopolist, who dare not take his chance with the farmer in the world's market, stays at home, and parasite-like, grows fat off the industry and thrift of those "hewers of wood and drawers of water."

The Duty on Live Stock.

A memorial has been presented to the House of Commons from the Provincial Board of Agriculture, asking the Government to allow the importation of live stock designed to improve the breeds in the country; and Mr. Young, of Galt, moved a resolution to admit thoroughbred animals free of duty. The Finance Minister, however, declined to allow the resolution to be put, and, strangely enough, it was not pressed to a vote, although had it been, it would doubtless have been carried, or, if not, the farmers of the country would at least know which among the politicians were friendly towards giving even that very small concession to the needs of agriculture.

While our legislators have turned the cold shoulder to this very moderate demand, the Americans evince a different pirit, for a member introduced a resolution into Congress not long since, to allow of the free admission of all animals imported with a view to the improvement of the stock of the country, and it passed without opposition, and the matter was at once ordered to be taken up by the committee of ways and means. We do not know what ever induced our Government to place a duty on live stock at all, for while it has acted as a great drawback to prevent many from importing, by reason of the risk of forfeiture through some careless oversight or mismanagement on the part of Customs officials, who are generally the most supercilious and obstructive of any class of men, the revenue derived has been ridiculously small, the importation being as follows in 1868:

Horses, 26; duty collected, $390. Cattle, 2; duty $20. Sheep, 54; duty $54. Swine, 7; duty $14.

Contrast this with our exports of live stock for the same year, which foot up as follows:—

Horses, 7,005; cattle, 40,660; sheep, 97,406; swine, 10,710.

The tax on the importer of improved stock is the more unjustifiable if it be true, as we are informed, that numbers of hogs are imported free ("in bond" it is called) by pork packers, to be re-shipped as pork to Europe and the Maratime Provinces. Surely the enterprising farmer has a better right to this slight indemnity than the mere trader.

Note.—In the tariff published since the above was written, we are glad to find an exemption introduced in favor of animals imported for breeding purposes.

The Drainage Act.

The Commissioner of Public Works has issued certain circulars and forms, together with a copy of the Ontario Drainage Act of last session, with a view of obtaining information as to those sections of the country which may be benefitted by the provisions of the Act. A copy of these documents has been sent to the various Reeves of the Provinces, with a request that the forms may be filled up and returned to the office of the Department. Amongst the circulars issued is one requesting the Reeves to inform the Commissioner whether there be any flooded, wet or moist lands in the township over which each presides. A form is enclosed which, being filled up, shows the No. of the lot, the No. of the concession, the approximate number of acres, and the quality of the land that the Reeve deems to be within the meaning of the Act.

Another circular calls attention to the Act, a copy of which is therewith enclosed, as well as to the "Act respecting Public Works" of 1869, and directs that the Council of the Township should, in the event of an allotment of money being made for drainage in their Township, agree to provide by By-Law for the repayment of the outlay as contemplated by the Drainage Act. A form of note undertaking to pass this By-Law is sent with the circular, which has to be signed by the Reeve—in Council, we presume—and returned to the Department. It is intimated in the circular that "the report "and estimate for draining the lands can be "obtained, when prepared, on application to "the Department."

Notes on the Weather.

The past month of March has been one of exceptional character. The weather has been exceedingly cold and stormy, and the fall of snow has been, quite unexpectedly, great.

The mean temperature of the month has been 25°.8, which is 3°.8 colder than the average, yet 2°.7 warmer than March, 1869. The highest temperature was 44° on the 29th, the lowest, 5°.2 on the 3rd. There have been 4 clear days, 9 partially clear, and 18 overcast. The prevailing winds have been N. W., but there were 14 days on which the wind was from an easterly quarter. Very little rain has fallen, but the fall of snow has been 62.4 inches, being 52.1 above the average, and 47.4 more than March, 1869. The fall of snow the present winter has been 123.4 inches, or over ten feet, and this is ten inches in excess of any year recorded. The heavy storm of 26th and 27th gave a fall of snow of 25.5 inches, and as it was very wet and heavy, the quantity of moisture in that amount is far greater than would be in an ordinary snow-fall. It is yet too early to tell for a certainty what are the prospects for the coming crop of winter wheat, mostly hidden, as it is at the beginning of the present month, under the snow, but in some few places, where we have been able to observe the plants uncovered, they seem entirely killed out, probably from the effects of the hard freezing they got early in autumn. It is to be hoped, however, that the damage done is not so great as appearances indicate, and we shall be glad to get reliable information from different points on the subject as soon as the actual appearance and prospects of the winter wheat can be told with certainty.

Toronto Nurseries.—The well known and long established firm of George Leslie & Sons have issued their annual catalogue of fruit and ornamental trees and shrubs, bedding plants and flowers, &c., a list which seems to include everything in the horticultural department suitable to the climate of Canada. The pamphlet is prefaced by useful practical hints on transplanting.

Fleming's Sale List for 1870.—We have received a copy of this very complete list of flowering plants and fruit trees, comprising a large variety of dahlias, verbenas, fuchsias, geraniums, and other choice ornaments of the garden, besides a good selection of all the best grape vines and small fruits. We direct special attention to the various horticultural advertisements in the present issue.

Correction.—In the advertisement of Clarke's Patent Two-horse Iron Field Cultivator, which appeared in the last two numbers of this journal, the address of the proprietor should have been Hampton, not *Hamilton*.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Prize Essay—Award.

To the Directors of the Fruit Growers' Association of Ontario.

The committee appointed to render judgment upon the essays on small fruits have had placed in their hands three essays with the following mottoes, viz:

First. "In labor there is profit;"

Second. "Whatever tends to promote production, increases the wealth of any nation;"

Third. "Poma mitis;"

and now beg to report their award.

In their opinion they are confined to the consideration of the two first mentioned essays, since the third, bearing the motto "Poma mitis," contrary to the resolution offering a prize to the best essay on the raspberry, blackberry, strawberry and currant, treats only of the strawberry.

After a careful perusal of the two essays first above named, the committee have decided to award the First Prize to the essay bearing the motto "In labor there is profit," and the Second Prize to the essay endorsed with the motto "Whatever tends to promote production, increases the wealth of any nation."

The committee desire to express their opinion of the great merit and excellence of the essay to which the first prize has been awarded, and earnestly recommend its publication and a careful perusal of it by the public.

We beg to submit this award.

Given at Hamilton, this 21st day of February, 1870.

W. H. MILLS.
ROBERT BURNET.
W. HOLTON.

Secretary's Report

To the Directors of the Fruit Growers' Association of Ontario.

Gentlemen,—I have this day received the award of the committee appointed to read the essays that had been received in competition for the prizes offered by this Association, and to adjudge the prizes; and therefore I have proceeded to open the envelopes endorsed with the mottoes to which prizes were awarded, and find that the envelope endorsed with the motto "In labor there is profit" contains the name of William Saunders, Esq., of London; and the envelope bearing the motto "Whatever tends to increase production, increases the wealth of any nation" contains the name of David Nicol, Esq., of Cataraqui, Kingston.

Your ob't. servant,
D. W. BEADLE,
Secretary to Fruit Growers' Association of Ontario.

Prize Essay on the Raspberry, Blackberry, Strawberry, and Currant

BY W. SAUNDERS, LONDON, ONT.

THE RASPBERRY.

Our improved varieties of raspberry have all originated from two or three wild native or foreign species—the European sorts chiefly from "the European Raspberry" (*Rubus idæus*)—our own from the common wild red raspberry (*Rubus strigosus*), and the black raspberry (*Rubus occidentalis*). These have been improved chiefly by cultivation, selection, and by hybridization or crossing. A number of plants have been raised from seed, and from these the most promising have been taken and cultivated; when fruited, fresh seeds have been obtained, sown, and subjected in turn to the same process of selection; or a hardy variety lacking flavour has been crossed with a tender high-flavoured sort, with the intention of raising, from the resulting seeds, plants inheriting the hardiness of the one, and yielding fruit possessing some portion of the delicate aroma of the other.

The soil best suited for the raspberry, and indeed for all the small fruits to be treated of in this essay, is a rich, moist, deep loam, inclining to clay rather than sand, well drained and thoroughly worked, either trenched with the spade or ploughed and subsoiled as deeply as possible. Such working, and, where the land has been at all previously exhausted, a liberal manuring, will place it in good heart to give strong growth to the plants placed in it. Individuals who are not favoured with such suitable soil may still grow good crops of fine fruit, even if the soil be very light and sandy; but in this case a far more liberal and continuous manuring will be needed, for the raspberry is a great feeder. It is useless to attempt to grow this, or any other of the small fruits we shall treat of, in a cold wet soil, for no amount of preparation short of thorough draining will remedy this defect.

With regard to the proper distance for planting, a difference of opinion exists; some advocating that the rows be placed four feet apart, others six feet or more. Where land is abundant, six feet, we think, is little enough, as this allows room for plenty of air and light, and also provides for horse-culture, which is a matter of considerable importance where a large piece is under cultivation. For similar reasons, in such a case we would advocate the placing of the plants four feet apart in the rows, rather than two, as this would allow of horse-culture the other way; for we are satisfied that there is nothing will tell so well on the health of the plants and abundance of the crop as a frequent stirring of the soil. Where land is scarce, as in the garden of the amateur, and it is desirable to crowd as much as possible into a small space, the rows may be reduced to three or four feet apart, and the plants from one to two feet in the rows, with fair results.

The red raspberry is propagated by suckers, which usually spring up in abundance from the roots of the plants as soon as they obtain good foothold in the soil. Some varieties sucker less readily than others—the Philadelphia, for example. Where it is wished to increase this propensity, a sharp spade should be thrust down into the soil all around the plant, to sever the roots, say a foot or less from the base of the plant, when the pieces of root thus cut remaining in the soil will usually throw up young plants in comparative abundance.

The black raspberries do not send up suckers, but are propagated by layering the tips of the canes. In the autumn the extremities of the canes lengthen much, become drooping and slender, finally touching the ground, and from this point sending out a mass of fibrous rootlets, soon developing, when undisturbed, into a vigorous plant; this, when well rooted, is severed from the parent by cutting the cane.

The spring is the proper time for planting. Then the well-rooted suckers or tips are dug up and transferred to their place in the new plantation, taking care not to expose the roots unnecessarily to drying winds or the heat of the sun. The rooted tips require no preparation in planting, but the stems of the suckers should be cut down within a few inches of the ground, so as to induce a strong shoot from the base for next year's fruiting. It is very unwise to attempt to obtain any fruit from raspberries the first year planted; with care a few berries may be ripened, but the fruiting process is an exhaustive one to the young plant, and it will often take years to recover from this foolish tax on its then limited resources. If the plants become well established the first year, a certain amount of fruit may be allowed the second without injury to the future prosperity of the plantation, but a *full* crop need not be expected until the third or fourth year.

Pruning.—Canes which have once borne fruit, bear no more. Hence, these should be removed assoon as the fruiting season is over, cut off close to the ground, so that the young canes may have more room and air. At the same time due regard must be paid to the thinning out of the new canes, removing all that promise to be weakly or slender. Since we depend on the strength of the current year's growth of wood for our next year's crop, any process which will conserve the vigour and concentrate the energies of the young plant is deserving of regard. Summer pruning and pinching we deem a valuable means to this end. The young plant, when it has attained about the height of three feet, should be pinched off at the tip; this will cause the side branches to develope, which in turn should be subject to similar treatment when from six to eight inches long. This pinching should be repeated if necessary, but should not be continued too late in the fall, since it would cause a late growth of tender wood which would suffer during winter. It might be practised safely enough till about the beginning of September, and any subsequent growth not wanted might be removed by a light spring pruning. This method we regard as much less wasteful than that of allowing the summer's growth to proceed unchecked throughout the season, and then prune back in the spring to a proper height. By this latter method the plant is allowed to waste its strength in the unnecessary production of wood which must be removed, and the growth is often long and slender; while in the former case all its energies are concentrated in the development of a stocky, well-ripened cane, far better fitted to bear its destined weight of fruit the ensuing season. This treatment is equally applicable to the Black Caps, unless where it is desirable to raise new plants; then the natural extension of the cane, or portions of it, must be allowed.

Manures.—It is universally conceded that stable manure contains all the elements required to recuperate the soil, stimulate the energies and increase the vigour of growing plants, and since this is probably readily obtainable by all our readers, we shall not enter into the subject of special manures. Stable manure should be well rotted before being used. If spread out in flattened heaps about three feet deep, in fall or spring, and turned over several times during the summer following, keeping it properly supplied with moisture, it will be in good condition in the fall to apply to growing plants, and a small quantity thus well prepared will be found more than equal in its effect to a much larger quantity of such as is coarse and only half decomposed. In this latter condition, however, it often serves a good purpose as a mulch to protect the roots either from the severe tax of a summer's drought or the pinching cold of winter.

Picking and marketing fruit.—Women and children are usually engaged in picking berries, and paid either by the day or quart, most commonly the latter; the price averaging about one cent per quart. The pickers take to the grounds with them the quart wooden boxes in which they are to be shipped, and when they are filled carry them to a shed, or other suitable place near by, where they are enclosed in well-ventilated cases, holding from thirty to sixty quarts. The pickers receive tickets corresponding to the number of boxes they bring in, which are produced when the time for payment arrives. All small fruits should be gathered carefully, free from leaves and other dirt, and also free from unripe berries. The pernicious practice resorted to by some of placing a few fine specimens on the top of a box while below the fruit is inferior, should be carefully avoided. Such a course disgusts both dealer and consumer; the surface should fairly represent the interior. In some localities where large berries are appreciated, it would doubtless pay to select the fruit, separating what is extra fine from the small and inferior; this applies particularly to strawberries. The latter would have to be sold at a reduced price; but the selected fruit would command a figure very much above the average, and the whole might thus be made more profitable. In all cases growers should avoid mixing their fruits; an assorted package, even if some of the varieties are superior, will seldom sell as readily as one the contents of which are uniform. All imperfect fruit should be rejected; half a dozen of such in a box will attract the attention of a purchaser far more readily than twice that number of extra good specimens. The best policy is to consign such to the pig-pen or the manure heap; reputation for quality is quite as valuable to the fruit grower as to any man in any other department of business.

Varieties.—These may be conveniently divided into three classes. 1st. Such red or yellow raspberries as are tender, and require winter protection; suited chiefly for amateur culture. 2nd. The hardy varieties, including some new ones claimed to be so, but as yet unproven in Canada. 3rd. The black raspberries.

Brinckle's Orange.—Of all raspberries we regard this as the finest. Its flavour, aroma, and appearance are equally charming and delicious. It is large, and of a beautiful orange yellow colour, and its full and slowly maturing crop supplies the table of the grower with a daily portion for three or four weeks. We think this variety might be grown with profit for a near market, but it is too soft to bear shipping far. In most parts of the country it would need winter covering; but in some of the more northern sections, where the snow lies deep and unbroken throughout the winter, if pruned low this would probably be a sufficient protection. In localities less favoured in this way, the canes might be allowed to grow moderately long, bent over as closely to the ground as possible without breaking, their tips covered with earth, and some loose litter—pea straw or light manure—thrown over them. The expense of covering an acre in this way would not be very great, and we think that the additional price the fruit would bring over any other variety would more than compensate for the extra labour.

Franconia is a large red variety of fine appearance and flavour, and very productive. In the milder portions of Canada, the Niagara district for example, it is hardy enough to stand most winters without injury, but it cannot be relied on in other sections away from the influence of the lakes. With me it has proved quite as tender as Brinckle's Orange.

Hornet—This is a still larger red fruit, very productive and of good flavour. Besides these we may enumerate the Fastolff Belle de Fontenay, Red Antwerp, French, and Marvel of Four Seasons—all good varieties.

We now come to the second class, embracing those which will endure uninjured the cold of winter without protection.

Philadelphia—Of all the hardy varieties this has been most widely tested, and maintains its character for hardiness and productiveness everywhere. It is dark red, medium to large in size, moderately firm, but very deficient in flavour, not equal we think in this respect to the wild fruit. We doubt very much whether this variety will pay for cultivation in localities where the wild fruit abounds, for although larger, it would necessarily be brought into competition with the native variety, and would hardly sell at a much higher price. A great deal would depend on how it was marketed.

Yellow Canada and Arnold's Red are two seedlings raised by Mr. Arnold, of Paris, Ont., which promise well. They are undoubtedly hardy, and are said to be very productive. They deserve fair trial, and we hope they will prove to be a valuable acquisition. Mr. Arnold merits great praise for his many efforts to improve our fruits.

Clarke—This new variety is highly esteemed in many parts of the United States on account of its hardiness, but we believe it has not yet been subjected to the test of our Canadian winters. The fruit is said to be large, light crimson, sweet and high flavoured. It is doubtless worthy of being tested.

Naomi—Much is said in favour of this new variety. In size and quality it is good, but it is doubtful if it will sustain the character claimed for it by its originators for hardiness.

Class 3rd—Black raspberries—The Doolittle Black Cap has been well tried throughout Canada, and has proved hardy and prolific. The berry is moderately large, black, with a slight bloom, sweet, juicy, and similar in flavour to the wild black-cap.

Mammoth Cluster, introduced to public notice by Furdy & Johnston, of Palmyra, N.Y., is doubtless an improvement on the Doolittle, being larger and more productive. We hope this berry will be extensively tried. Its period of ripening is just after the Doolittle.

Davison's Thornless is another new claimant for public favour, ripening about a week earlier than the Doolittle. The absence of thorns on the canes will be of great advantage in gathering the fruit.

Golden Thornless is a new yellow raspberry belonging to the same family, is nearly if not quite as large as the Mammoth Cluster, firm in texture, of handsome appearance, but deficient in flavour.

Although we have now enumerated many varieties, all of which possess some good points, we still feel that they all have their defects. We want a raspberry that will combine the good qualities—hardy, productive, large, juicy, moderately firm and high flavoured. Whether we shall ever attain to this degree of perfection, time alone will disclose. We sincerely believe it to be possible, and trust that the many labourers who are working to produce new varieties will never relax their efforts until something near this desired end is obtained.

Dr. Asa Gray, in his Manual of Botany, speaking of the black and red raspberries, says, "some curious forms are known, with fruit intermediate between these." We are not aware of any such in cultivation, but the fact of their being met with in a wild state would suggest the idea of a natural crossing of these two through the agency of insects. Might not some *valuable* varieties be similarly produced by the more intelligent workings of man? Here is an almost unexplored field for the enthusiastic fruit grower.

Insects—The raspberry is not without its insect enemies. A borer, the grub of a long horned beetle (*Oberea tripunctata*) burrows its way up and down the middle of the cane, weakening and destroying it. The beetle girdles with its jaws the new cane not far from the tip, in two places, one ring an inch or more below the other, and between these, in a puncture, the egg is deposited, which soon hatches into a grub, furnished with powerful jaws, and which at once enters on its destructive career. The tip above the upper ring on the young cane withers and droops, by which the presence of the enemy may be readily detected. The operations of the parent insect begin early in July, and continue for several weeks. By looking through the canes occasionally at this season, and removing all the withered tops, down to the lowest ring, this insect may be pretty well subdued, as it is never abundant. The worm lives in the cane, and undergoing its transformation there, appears as a beetle the following June.

A much more troublesome pest is the grub of the raspberry sawfly, a green worm covered with short green spines. This eats out the soft parts of the leaves, leaving the skeleton framework of tougher veins. There are two broods during the year. The fly deposits its eggs early in spring, on the under side of the young leaves, soon after they begin to expand, where they speedily hatch, and in a few weeks become full grown worms, about three quarters of an inch long. Entering the chrysalis state, just below the surface of the earth, they appear again by the middle of summer as perfect flies, deposit their eggs, and from these the second swarm is produced, the survivors of which pass the winter in chrysalis under ground. Hellebore is a sovereign remedy here; an ounce or so mixed with a pail of water and showered on the bushes with a watering pot makes short work of them.

The tree cricket (*Œcanthus niveus*) is another enemy—a green, active, grasshopper-looking creature, appearing late in the season and chirping merrily among the green leaves all the day. The female has a long ovipositor, which she thrusts more than half way through the cane, and by means of which she introduces her long yellow eggs. A row of these, placed closely together, and occupying perhaps an inch or more of space, so weakens the stem that it readily breaks from its own weight as soon as the foliage appears in spring, and thus the crop is lost. We know of no method of destroying these as ready as that of cutting the affected portions out and burning them some time between fall and spring. They are readily discovered, appearing as a short seam with little raised dots on it.

THE BLACKBERRY.

Much that has been said about the raspberry applies equally well to the blackberry. The methods of raising new varieties—the soil and its preparation, proper distances for planting, propagation by suckers, time of planting, pruning, and insect enemies, all apply here and need not be repeated. It remains then only to treat of the varieties in cultivation. These, like the raspberry, have originated from our wild sorts, of which there are five or six species.

Lawton or New Rochelle, a very large juicy berry, moderately sweet when fully ripe. This variety has been tried in many parts of Canada, and usually proved a failure. The canes will not stand the winter, and their growth is too robust and thorny to admit of their being laid down for winter protection.

Wilson's Early—A new variety, said to be hardier than the Lawton, a very large, oblong, oval, firm, sweet berry, ripening earlier than the other varieties—will be a great acquisition if it will endure our winters.

Kittatinny—Also recently introduced to notice, and reported to be very hardy. Fruit large to very large, sweet and firm, a good grower, very promising, and should be extensively tried.

Sable Queen—This fruit was first offered to the public last year; it originated in Massachusetts, where it has stood the winters for some years. The fruit is fine looking and will doubtless be widely tested.

THE STRAWBERRY.

All our large and luscious strawberries, which charm the eye and delight the palate, have had their origin also in the wild vines of the woods. These wonderful changes have been brought about, too, by selection and hybridization, man assisting nature, as it is always his happy privilege to do. New varieties have thus been multiplied rapidly, until now their number is almost confusing.

Soil such as has been described as suitable for the raspberry is equally good for the strawberry, for although the wild vines are often found luxuriating in arid sandy spots, yet no fruit shows in grateful growth a readier appreciation of generous treatment than the strawberry. The richer the ground the heavier the crop, is a safe rule to go by, to any reasonable extent.

The vines are usually planted in rows, two

three, or even four feet apart, with the plants set a foot apart in the rows. The wider distances are required when it is intended to use horse culture. The runners are cut off as fast as they appear, and the ground kept free from weeds. Before winter sets in, it is well to cover the entire surface with straw or other litter, removing it only from the crowns of the plants in spring, leaving it all on the ground until the fruiting season is over, as it will help to keep the earth moist and the fruit clean. After the berries are all picked, it will require removal and the ground well weeding and pulverizing, since it will have become very hard by the continuous tread of the fruit gatherers. The plants may be renewed after two crops have been taken by allowing the runners to spread over the surface, and plough under the old plants and nearly all else, leaving only a narrow strip of young plants every three or four feet. The ground after ploughing may be levelled with a cultivator.

The plants should be carefully set, not thrust into a hole with the roots compacted into a bundle, but in a natural position. Much of the success of a plantation will depend on proper attention to this point. Unless the vines can be got out quite early in the fall, so as to be well rooted before winter, we prefer spring as the season for planting. There is not much gained in point of time by late fall planting, and the plants are very likely to be injured by the severe frosts of winter.

Varieties—We think it is generally conceded that there is only one variety as yet in common cultivation which will really pay to cultivate for market purposes—that is, the Wilson's Albany. Every large producer in the country depends on it for his main crop. It is true, when compared with some other varieties, it is acid, and lacks flavour, but when well ripened it is not so far behind in these respects as some would have us believe. For our own part, we can eat Wilson's Albany, when we can get them, without making a wry face, and the general public seem to regard them with equal favour, judging from the immense quantities which ever find a ready market.

Many other varieties claim the attention of the amateur, some for their delicate flavour or aroma, others for their immense size, but none of them, in my experience, come near the Wilson for productiveness. The following list embraces nearly all of much merit:—Jucunda, Agriculturist, Bishop's Seedling, Nicanor, Charles Downing, French, Ida, Downer, Hooker, Green Prolific, Golden Seeded, Ladies' Pine, Russell, La Constante, Trollope's Victoria and Triomphede Gand.

The strawberry has not usually been much afflicted with insect pests. Occasionally the crop will be partially destroyed in some particular field by the ravages of cutworms, the caterpillars of some of our common moths or millers, or by the grub of the cockchafer or May beetle. But of late two new enemies have appeared upon the scene which demand a few remarks, since, should they become generally troublesome, the profits of the strawberry crop would be much diminished. One of them is a leaf-roller, a small green caterpillar which rolls up the leaves and fastens the opening blossoms into a ball with silken threads, and living within consumes them. These are the progeny of a small yellowish moth, who lays her eggs upon the plants quite early in spring, so that the caterpillars become nearly full grown, and capable of most mischief, just at the time when the plant is coming into full flower. On one patch we examined the past season the damage from this cause alone would be moderately computed at half the crop. We have also observed this insect in several localities on the wild strawberry. The other is a borer, the issue of a still smaller brown moth, who lays her eggs on the crown of the plant late in July or early in August, which soon hatch into small reddish caterpillars, which burrow through the heart of the plant in various directions, through the fall and winter, either killing it outright or weakening it so much that it sends up in spring only puny barren shoots from about the base. Late in May, when the leaf roller is active and full of mischief, this twin brother in the work of destruction sleeps quietly in chrysalis, appearing in the winged state about the middle of July. The following remedies are suggested—Dusting with fresh air slaked lime, or with soot, or watering with hellebore, mixed as for the currant worm These would certainly be of service, but whether they would singly or jointly entirely meet the case is a matter of doubt.

THE CURRANT.

Of these we have red, white, and black, varying in foliage and fruit and time of ripening, all requiring a rich soil, well worked and manured, to produce fine crops of large fruit.

They may all be propagated by cuttings, which are best made in the fall, tied in bundles and buried under ground during winter, and planted in spring. The young bushes of one to two years' growth should be planted out in rows, from five to six feet apart, and four feet in the rows. The pruning and management of the red and white currant is somewhat different from that required for the black. The fruit of the former is mainly produced on wood that is two or three years old, hence in pruning the new wood may be shortened considerably to induce the formation of strong fruit spurs; in the black variety the fruit is produced from one year old wood as well as from small spur-like shoots from the older, which should be borne in mind in pruning, so that a sufficient amount of wood of last year's growth be left to insure a full crop of fruit. In both cases a portion of the old wood should be removed from time to time, as well as some of the shoots or suckers, when they are likely to become crowded, so as to keep the head open and admit light and air to the centre of the bush. The stool or bush form is the natural mode of growth for the currant, and is less trouble, and, we believe, far better than the method sometimes recommended of growing in tree form with a single stock. The chief objection to the latter is that should the currant borer visit this single stem the bush is lost, for the small hollowed trunk would necessarily break from its weight of foliage.

Varieties—The following are some of the best in cultivation.

Red Dutch—Fruit large, deep red, rich and good, bunches long and tapering, a vigorous grower and very productive, an old and well known sort.

Victoria—Fruit large, bright red, acid, but of good flavour, bunches very long and tapering, very productive.

Cherry—Fruit very large, dark red, acid, only second in quality, bunches very much in size, this is the largest red currant in cultivation.

Versailles—Very closely resembling the Cherry, by some thought to be identical.

Prince Albert—Fruit large, bright red, rather acid, not rich in flavour, very productive, later than most of the other varieties, for which it is chiefly valued.

White Grape—Fruit large, yellowish white, transparent, juicy, moderately sweet and rich, bunches medium size, habit vigorous, very productive, the best white currant.

White Dutch—Fruit very similar in appearance and quality to the white grape, but somewhat smaller.

Black Naples—This variety has now almost entirely superseded the old English black. It is very large, black, sweet, with a peculiar musky flavour, bunches medium size, loose, a vigorous grower and productive.

Insects—There are several insect enemies, affecting chiefly the red and white varieties, with which almost every currant grower has to wage continuous battle, and so troublesome have they become of late that the culture of these valuable fruits has been sadly interfered with, many having given it up almost in despair. First in its destructive powers we would place the currant borer, a small whitish grub with brown head and legs, which lives in the stems of the bushes, burrowing up and down, making them so hollow and weak as to be liable to break with every wind. The parent of this worm is a pretty little clear winged moth (*Egeria tipuliformis*) something like a wasp, with three gold bands across its body. The moths appear about the middle of June, flying in the day-time only, depositing their eggs singly near the buds, where they soon hatch into small worms, which eat their way to the middle of the stem, and there enter on their career of destruction. When mature they are about half an inch long; they live in the stems through the winter, change to chrysalis early in the spring, appearing as moths in June again. These can best be kept within bounds by carefully removing in spring every stem found to be hollow, and burning it.

The caterpillar of a geometric moth (*Ethopia ribearia*) called a measuring worm, feeds on the leaves, when numerous stripping the bushes bare. Its colour is yellowish, dotted with black, with its sides streaked with white. It is about an inch long when full grown, and has its feet placed at each extremity of its body, so that in moving it loops itself up at every step. The moth from which this worm is produced is a delicate-looking creature, measuring about an inch across the wings, which are yellowish in colour, spotted with pale brown; the spots being arranged into one or two irregular bands extending across the wings. The eggs are usually deposited in May, but sometimes later. The worms are found during the month of June, and occasionally in July. The best remedies are hellebore and hand-picking.

The Gooseberry Saw-fly (*Nematus ventricosus*) also deposits its eggs on the currant leaves, and proves usually a much greater pest than the measuring worm. The perfect insect is a small fly nearly as big as a common house-fly, which appears early in spring, and deposits its eggs along the ribs on the under side of the new leaves as soon as they are sufficiently expanded. These speedily change to small green worms dotted with black, which at once begin to devour the leaves. They grow rapidly and are often so numerous as to strip a bush entirely bare in a few days. When fully grown they are about three-fourths of an inch long, and at their last moult lose their black dots, appearing in uniform pale yellowish green. They spin a small, tough, papery-looking cocoon, sometimes at or under the surface of the ground, at other times attached to the leaves or stems of the bush, from which the perfect insect escapes early in July. There are two regular broods during the season, and often a few odd specimens appear out of season, between times, so that constant vigilance is necessary to insure successful resistance to their repeated onslaughts. A ready means of destruction we have in powdered hellebore; an ounce of this well mixed with a pail of water, and applied with a watering-pot, clears the bushes effectually in a very short time.

A green worm occasionally affects the fruit, drawing the berries together in a bunch, fastening them with silken threads, and consuming their contents. This, however, is seldom met with excepting on the gooseberry, and needs only a passing notice. Where they prove troublesome we can suggest nothing better than hand-picking.

The Black-cap Raspberry seems to be a great novelty in Germany, and is now grown there with great success. Nothing was known of the fruit in that country until it was introduced from America.

Improvement of Native Flowers and Fruits

To the Editor.

Sir,—For years past I have been looking out for some articles or communications in our horticultural periodicals upon this interesting subject, and with the hope of inducing some young persons to enter upon this pleasing field of labour, I beg to offer a few remarks, feeling assured that no real lover of the beautiful who has strolled through our native forests in the summer season, can fail to have been struck with the beauty and brilliancy of our native flowers, and the rich foliage and frost-defying hardiness of our native fruits. In many of our town, village, and country burying grounds, what noble specimens of native flowers and fruits are frequently to be found. In a graveyard not far from where I write there is a neglected spot set apart for the interment of the poor and the stranger. Upon some of these graves there has sprung up spontaneously a luxuriant cluster of wild roses, with their roots running together in a thick entangled mass, and in the summer season, instead of there being a few straggling flowers, there is a perfect sheet of beautiful, though single flowers, and in the fall an abundance of fruit for the birds. Not many rods from this are the graves of persons of wealth, where many exotic flowers are planted, and cultivated every year at considerable expense. Here, for instance, stands the rose "Giant of Battles," but the poor giant is a dwarf beside the wild roses, and is every winter cut down to within a few inches of the ground by frost, while the wild roses have stood there for years, bidding defiance to twenty degrees below zero, with no cultivation or protection whatever.

I was very highly pleased with the article in your columns in February, from that veteran florist, William Paul, of Waltham Cross, England, and hope every lover of his country amongst us will see it and read it thoroughly, and then transfer the instructions there given on crossing plants in England to our own indigenous flowers. It will be well also to look around and see if there are not many things besides those that are valued for their flowers only, to which these instructions will apply. Consider, for instance, our numerous native nut-bearing trees, and say can these not be improved by crossing with some better European varieties. Look again at the various members of the cotton family that spring up spontaneously in many localities in this northern portion of America. I ask can these not also be crossed with the cotton of the south, and yet preserve the hardiness of the one with all the good cotton-yielding qualities of the other? I feel confident they can.

The greatest difficulty that stands in the way of these improvements is to find men willing to devote their time and means to this purpose. Perhaps it may be just as well to look some of the discouragements to this undertaking in the face in the outset. One of these, and perhaps not the least to some sensitive persons, is a class of jealous, narrow, contracted little souls that will meanly insinuate that we are prompted by no higher motive than a desire of pecuniary gain. Of this class of persons I would say, let them alone, and rest assured that when the improvements suggested shall become a reality (which they most assuredly will if persevered in) these dog-in-the-manger men will be the loudest in their acclamations of praise, provided they are only allowed a share in the honours.

I have long been of opinion that in whatever country nature has planted varieties of any of her numerous orders of plants, there, that family, by judicious crossing, and proper cultivation, can be raised to a high degree of perfection. That the improvement will be attended with some difficulty and much labour and expense there is no doubt, but if the one hundredth part of the money that has been spent these last twenty years in procuring useless varieties of fruits, flowers, cereals and vegetables from Europe had been spent in improving our own native or acclimatized ones, horticulture and agriculture in Canada would occupy a much higher position to-day than they now do. Not that I would discourage testing the productions of other countries by any means, but it would be folly to deny that ninety-nine out of every hundred of the fruits, flowers, cereals and vegetables that succeed well in the British Isles, when planted in Canadian soil and climate are a total failure.

CHAS. ARNOLD.

Paris, Feb. 24.

How to Prevent the Attacks of the Apple Tree Borer.

At about the end of May or the beginning of June, according to the warmth of the weather, the winged beetles of the Apple Tree Borer begin to deposit their eggs on the bark of the tree. They do this at night, depositing only one in a place, selecting sometimes the forks of the main branches, but more commonly the trunk of the tree near the ground.

If, then, at about the first of May the whole of the trunk of the tree, up to and including the forks of the main branches, be thoroughly washed with cold-made soft soap, or well covered with whitewash, or even well washed with a solution of potash, the alkali will kill the eggs, or the young grubs as soon as hatched, if the female insect should chance to deposit them on the tree. But insects are all endowed with most wonderful instincts, and it is very doubtful whether the parent beetle ever deposits her eggs on a tree that is thus covered with a strong alkali. Those who have tried this preventive unite in saying that the trees thus treated are never attacked by borers of any kind, but remain sound and safe.

How to Destroy Bark Lice.

As a usual thing these insects are most abundant on unhealthy trees, but sometimes the tree might recover were it not for the debilitating effect of these insects. In some parts of the country there is considerable complaint of these bark lice, and it is quite possible that they should fasten upon a healthy tree in such numbers as to seriously impair the health of the tree.

When they are not very numerous, a wash of cold-made soft soap, or of a solution of potash, or even a thorough white-washing with lime white-wash, will be found quite sufficient to rid the tree of their presence. But when they have become very numerous, it has been found to be more surely destructive to prepare a mixture by boiling leaf tobacco in very strong lye until it is reduced to an impalpable pulp, and then mix it with cold-made soft soap until it is about as thick as good paint, and then put it on with a paint brush to every part of the tree, trunk, branches, limbs, and twigs, quite early in the spring, before the buds are much swollen. This application, if thoroughly put on, will surely be the death of every bark louse.

Fruit-growing in the Ottawa Region.

The report of the Fruit Growers' Association of Ontario contains a summary of the information obtained from the counties of Renfrew, Carleton, north part of Lanark, Russell and Prescott, from which we learn that the apples to be planted there should be of the most hardy kinds, such as the several varieties of crab-apples, the Snow-apple, Duchess of Oldenburg, Red Astracan and Northern Spy. The Baldwin and Rhode Island Greening are spoken of as being too tender, the trees being often winter-killed, or so injured by the severity of the climate as to fall easy victims to injurious insects.

Pear trees have not succeeded well, on account of the extreme cold. The varieties which have in some measure succeeded are the Flemish Beauty and Stillwell. The latter named variety may be some local sort that has been found to be worth cultivating on account of its hardiness, but it is not described or named in American pomological works.

The plum tree seems to endure the climate somewhat better, and in some seasons bears immense crops of fruit. The black knot is troublesome there, as almost everywhere else. The curculio too is found there, stinging the fruit and causing it to drop off before it is ripe. In some seasons the fruit seems to burst after it is set, swelling out into a mere puff ball and then dropping off. Yet, after all, it seems to be fully as reliable as any of the fruit trees.

Cherries, particularly the sweet varieties, do not endure the climate; the Red Kentish is grown to some extent, and there are wild varieties.

The peach, quince, apricot and nectarine cannot be grown.

The small fruits have not received much attention. Strawberries, raspberries, and currants will all thrive well, and bear fine crops of fruit. Blackberries grow wild in great abundance. The English gooseberries, on light, sandy soils, mildew badly; less on low, heavy land.

Grapes have not been tried to any extent, and there is much confusion and contradiction in the information concerning them. It does not seem to be possible that the Isabella and Catawba should usually ripen there, yet such is the testimony of one gentleman. We must wait for further experiments.

The soils best suited to fruit trees are those that are lightest and warmest. All attempts to grow orchards on clay land have been unsuccessful.

Protecting Trees from Mice.

To the Editor.

Sir,—Can you inform me if there is any efficient method of preventing the destruction of young apple trees in the winter from mice girdling them? I have stamped the snow down around them several times this winter, and yet I now find that several valuable young trees in bearing are completely girdled upwards of a foot from the ground. I have in vain tried to trap the mice. Would painting the trees in the autumn with some liquid be of any use, say tar? or would the application injure the trees? I find some pear and apple trees of three inches diameter utterly destroyed.

HENRY BORINGEARTH.

Reply by Hort. Editor.—If a cone of earth is raised around the trunk of the trees to such a height that the top of the cone will be above the snow, the mice will not girdle the trees, because they always work under the snow. This cone of earth must be placed around the trees early in the fall, before the ground freezes. If the snow usually lies too deep on the ground to admit of such a cone of earth being raised around the trees, then the trunk may be covered with sheets of brown paper tied on with a string to a height that will be above the snow line, and then coal-tar painted on the brown paper. The direct application of the coal-tar to the trees has been found to be injurious to them. If coal-tar can not be had, the paper may be painted with any cheap paint and sanded while the paint is wet. The paper should be stout enough to admit of being painted.

Trimming Hedges.—"Neseius" asks what is the proper time for trimming certain kinds of hedges. Buckthorn, Hawthorn, Privet, and Honey Locust require to be trimmed in April and July in order to be neatly kept; the Sweet Briar only in spring; and the Norway Spruce should be shortened in with the knife, not trimmed with the shears, in the early part of June.

Packing Apples for Long Voyages.

Those who read the discussions on the packing of apples, at the last meeting of the Fruit Growers' Association, will remember Mr. Ball's statement of his method of packing, and that some gentlemen thought that he did not press the fruit in sufficiently tight. We have been privileged to see a letter to Mr. Ball from his consignees in Scotland, dated February 3rd, 1870, in which they say, "Your good and honest packing is a great help to us, and indeed we would rather want apples entirely than have barrels good only on the top, and unfair and even bad below, as some ship them. It it our custom to refer to your careful packing and your honest packing as a model to all others. The barrels open as good and *tight* as when they left your store. Please on no account remit your vigilance and care."

From this it will be seen that Mr. Ball's mode of packing ensures the safe arrival of the fruit, and that they are pressed down sufficiently tight for all necessary purposes.

But we have craved the privilege of making these extracts from the letter, not merely to show that by his method of packing the fruit is kept in good order, but chiefly to impress upon our fruit growers the importance of carefully selecting their fruit, and never allowing any of inferior quality to get into the barrels. The attempt to put off an inferior sample by mixing it in the body of the barrel with fine fruit is sure to be detected, and to be visited upon the dishonest packer in the end.

The New Rose—Madame La Baronne de Rothschild.

We have just been favoured with the privilege of seeing this truly superb rose, which was imported from England last autumn and bloomed in the house. No wonder that it received a first-class certificate from the Royal Horticultural Society, England. In habit the plant is very robust, and judging from the number of buds now formed and forming, it should be a free bloomer. The colour at this time is a most beautiful clear deep rose, and the flower large and double. This rose has the reputation in Europe of being one of the best, if not the best, of its colour.

Currants and Gooseberries.

A fruit seller of New York City, writing for the *Rural New Yorker*, calls attention to these fruits on account of the ease with which they can be cultivated and marketed. Gooseberries sell in that market at from three to five dollars per bushel. Currants sold last year at from ten to fifteen cents per pound, commanding a ready sale at these prices. They can be shipped in grape boxes with entire safety, and arrive in good order. Will some of our readers residing in the cities of Ontario inform our readers whether these fruits command a ready sale with us, and what are the ruling prices in Toronto, Hamilton, London, etc?

Double Geraniums.

We have been so much pleased with these great acquisitions to our summer flower beds that we have had an engraving made of a flower truss, in order to give our readers some idea of what exceedingly beautiful things they are. The engraving is about one half the natural size.

These double geraniums possess the advantage of holding their bloom much longer than the single varieties. In some the flower truss is remarkably large, containing from sixty to eighty blossoms, and in colour as rich as a Provence Rose. Gloire de Nancy is of a rosy carmine, Le Vesuve is an orange scarlet, Madame Lemoine is a bright rose colour, Victor is bright orange scarlet, striped and flaked with white, and Victor Lemoine is of the finest scarlet. These varieties are now grown in Canada, and can be had of our nurserymen and florists.

The Concord Grape.—A correspondent of the *Rural New Yorker*, writing from Montgomery county, New York, says that the Concord grape stands first, is hardy, well adapted to our severe winters, bears full and ripens early. The Isabella is too often cut off by the early frosts to be reliable.

Tomatoes.

A correspondent of the *Rural New Yorker* states that he has found these plants grown in boxes in the kitchen window and transplanted a few times, though only a few inches high when set out, would ripen their fruit quite as early as large plants of the same variety, grown in pots and purchased of the market gardeners. He therefore concludes that age, not size, is what is wanted.

He also states that he has grown, with much care, many varieties, and has found the Eureka and Keyes' Prolific ripen first, and the Early York and Tilden follow, while but very little behind either of these comes the Large Smooth Red, a variety much to be preferred every way for a general crop. He would give the preference to the Tilden but for its uniform tendency to crack. Lester's Perfected is the latest in ripening of any of the sorts he has cultivated.

Our own experience of last summer leads us to expect that the General Grant will prove a formidable rival to the Large Smooth Red. In solidity, flavour, and early maturity under unfavourable wet cold weather, it excelled even the Large Smooth Red, which has hitherto been our favourite variety. But the experience of one season is not sufficient to establish a reputation over one that has been so long tried and found to be reliable.

Trees for Shelter.

To the Editor.

Sir,—In the January number of the Canada Farmer there is an article on the Norway Spruce, Now, as I have experimented a good deal in a small way in planting the "Greenwood Tree," perhaps you will give space for a few lines on my experience. The Norway Spruce is a noble tree, and if transplanted young, after the first two or three years grows very fast and is quite hardy, and if allowed plenty of room makes a very handsome tree. I planted mine in land trenched about eighteen inches deep, and as they were not numerous I took great care of them the first year, watering and mulching, and so lost none of them; I only have some two dozen altogether. I gave them an application of black peaty soil mixed with good fresh house ashes the second year, which they seemed to approve of highly. I have also some Canadian Spruce, almost, if not quite, identical with the Norway kind, and, I think, just as handsome. The "Norways" were got at Guelph nurseries; the "Canadians" in the bush. I have also a good many Balsams from the bush, and I really think they are as handsome as the Spruce. The Cedar is a good tree either for ornament or shelter, and is all the better for being clipped. The Tamarac, or Larch, is a very pretty tree, and is hardy, but likes moisture. Clipping improves it also when young. I had some in rather dry spots, and the hot, dry summer of 1858 killed several of them. None of my planted trees are over twenty years old. Some years they threw out leaders from twenty inches to two feet long, but in 1859, the year of the dreadful summer frosts, they hardly grew at all, and the pretty shoots of June were hanging in October like brown tassels. The Hemlock is the most tender of the Canadian evergreen trees, which is a great pity, as it is a beautiful tree, very like the Yew tree; it does not bear transplanting well, and the field mice girdle it when young. I cannot see your objection to calling a Spruce a *Fir*. In Scotland it was called a Fir, and the Silver Fir and the Scotch Fir, the handsomest, or grandest rather, of the whole lot. Pine may be more fashionable, and I went to see a beautiful *Pinetum* in Gloucestershire some ten years ago. The Latin names were there, of course, which about one in every fifty understands, but there was the "Scotch Fir," "Silver Fir," "Spruce Fir," and so forth, on the labels as well as the Latin names.

I got a belt of evergreen trees planted in the grass. At least the half of them died, but the rest are thriving nicely now, and some of them are large handsome trees, all Canadian from the bush. I have seen the Canadian Spruce used for a hedge, and it does very well. With regard to ornamental hedges, the common purple lilac makes a capital hedge. It is the first shrub almost to grow green in Spring, and keeps green till the snow falls, and a lilac hedge in full bloom is something worth seeing as well as smelling. The lilac

will grow anywhere; in fact, you cannot kill it, and it is a strong, tough bush. The cows eat the shoots when tender, but a summer's rest will more than make up the damage I would not like, however, to trust it by itself, or indeed almost any other hedge, as the cattle are very troublesome, and when annoyed by flies, I have seen them rush into a good big thorn bush just for the sake of a good scratching. If you wish another yarn on trees I will be happy to give you one; all I give is from my own practical experience.

Fergus. F.

Note by the Horticultural Editor.—Our correspondent "F" will please continue his very interesting letters. Actual experience is what is wanted; the success or failure of an intelligent planter is a guide to others. Does the Hemlock suffer from the severity of the winter at Fergus, or is the tenderness only the difficulty of transplanting? If the latter, that can be obviated by taking very small plants from the forest, and planting them in nursery rows, and shifting them two or three times before they are finally planted.

The objection to calling a "*Spruce*" a "*Fir*" is just the confusion that arises when one name is applied to two things that are really different. Botanists have classified the evergreens under the genera of Pines, Spruces, Hemlock Spruces, Firs, Cedars, etc. Now, if a correspondent calls the White Spruce the Fir, a reader is misled, and applies what is said to the wrong tree. There is need, therefore, of care to give the correct name of the tree about which we are writing.

Will not our correspondent plant out a Pinetum of such evergreens as promise to endure our climate, and give the results of his experiments to the public? We promise him much pleasure in the care of them, and such aid as it may be in our power to give.

Grape Queries

To the Editor.

Sir,—Would you allow me to answer several questions through the medium of your widely circulated journal? Many persons have written to me for information about grapes, asking what kinds to plant, &c. It would be difficult for me to write to every one, and so, if you think the following hints and suggestions of sufficient interest, you can publish them:—

1st. Which are the finest and showiest grapes for exhibition?

The largest and finest-looking grapes of my collection of seventy varieties is the Ontario. I have grown them three and a quarter inches in circumference to a single berry. But in my vineyard of seven thousand vines I have not a single Ontario, because it is too tender. The Ions also is a large and showy cluster, and Allen's Hybrid is also a large and beautiful cluster. These three are all magnificent-looking—black, red and white.

2nd. Which is best for market? This is a difficult question. I would give five thousand dollars to-day to know for a certainty which three kinds of grapes to plant to make the most money out of them, in a space of say twenty years. However, we are learning in the school of experience in this matter, and some of us have had to pay pretty dearly for such learning. I have had my twenty years of experience, and have about concluded that of the older and tried sorts, Concord and Delaware will give you most money. As to the new sorts, if I were to advise your readers to plant any of them, I am sure that fifty others, of perhaps equal opportunities to judge, would certainly differ from me, and so I say, try for yourselves.

3rd. Can we not grow a few of the finer foreign sorts—say Muscat of Alexandria, or the White Nice—in Canada, if we put them on the south side of a wall or building, and protect in winter?

I reply that I think it of little use to try; better try the natives out of doors; put your foreigners in the hot-houses.

I will note a few of our new grapes now before the public, but caution your readers to remember that their trial has only been for a short time, and in my own locality:—

Iona—Seems quite uncertain: sometimes fine, but generally does not ripen.

Creveling—*Of* first quality, and will surely ripen in Canada every season. Its great fault is that it generally gives poor clusters, but the berries are large.

Rogers, 4, 15, 19—General character very much like the Creveling.

Hartford Prolific—Very early; will always ripen in Canada; rather coarse quality, and in wet seasons drops from the bunch.

Israella—Very fair and early; not as strong growers as the others mentioned above.

4th. Where can we get good vines?

We have several good nurseries in the Dominion. I think all the varieties I have mentioned could be bought of any of our nurserymen or vineyardists.

J. C. KILBORN.

Beamsville.

Best Method of Training Apple Trees in Cold Climates and Exposed Situations.

It is said of Dr. John A. Kennicott, that no man has ever yet lived who had as good a knowledge of the form of tree that was requisite to enable it to withstand the great extremes of temperature, and the cold, bleak winds that prevail on the prairies of the West, and he said that the very best protection to an orchard on the bleak prairies is to make the branches low down, so as to cover up the entire trunk of the tree until the rough bark is formed.

These views of Dr. Kennicott are not without confirmation by observing fruit growers in our own Ontario. Mr. John Fisher, of the Township of Plympton, County of Lambton, says in a letter to the Secretary of the Fruit Growers' Association, written in 1862, "trees that are allowed to branch out low, say about three or four feet from the ground, are generally healthy, but those that have a long trunk are sure to get black on the south-west side, and soon die off"

Mr. L. Crosby, of Markham, in the County of York, writing about the same time, spoke of the importance of protecting the trunks of the trees.

Have any of our readers seen any orchards in the colder parts of the Province which have been trained with low branches? If any know of such, and can state the effect, beneficial or otherwise, we should be most happy to receive their communications. There is much need of some protection to the trunks of the apple trees in cold and exposed places. How best to secure that protection is a question of absorbing interest to all fruit growers whose lot is cast in the bleak parts of the country.

What Causes Failure of the Peach Crop?

To the Editor.

Sir,—You have frequently asked me to give you the result of my horticultural memoranda, if anything struck me as likely to be useful to the enquiring horticulturist.

For some years it has been a disputed point as to what affects the peach crop. My own conviction inclines to the degree of cold. Others, however, are in favour of the destructive influence of storms forming a crust of ice on the tree, and thus destroying the germ.

For the purpose of ascertaining if my theory were the correct one, I have kept a memorandum of the weather and the peach crops for many years, and I have invariably found that when the thermometer goes below 10°, the peach *blossom* bud is destroyed; the *leaf* bud appears able to resist a greater degree of cold, or the trees themselves would be killed. I have also found that the mere fact of ice forming on the trees does not affect them without the degree of cold necessary to kill the bud, which I contend is 10° *or below* For instance, in 1862, on the 15th March, we had a very remarkable storm of sleet, forming ice one-half to three-quarters of an inch thick on every limb and twig, causing great destruction amongst all trees and shrubs. My old peach trees were nearly all broken down. This, I find, on referring to my memoranda, was a "remarkably fine fruit year; peach trees full of fruit." In February, 1869, we had a similar storm, but not so violent. Last year, although not a good peach year, "the crop was very fair." If we have a good crop of peaches the coming season, I think the question will be pretty well settled; and I also think that if you would call the attention of the horticultural world to a discussion of this question, it will settle another question, as to what degree of cold the peach will bear without injury.

Would it not be a good subject for discussion at a meeting of the Fruit Growers' Association?

JAMES TAYLOR.

St. Catharines, March 2, 1870.

Lombardy Poplars for Wind-breaks.

To the Editor.

Sir,—Mr. Mitchell states that Lombardy Poplar is one of the best wind-breaks for an orchard. I question the propriety of planting wind-breaks for orchards. It takes five or six years before it is of sufficient height to protect anything; by that time the apple trees are large enough to take care of themselves. When bearing, if well sheltered, the buds will open early in spring, and the young fruit will be cut by the frost and spoil the crop; whereas, if not sheltered, the buds would not burst before all danger of frost is over. Mr. Mitchell will find that twenty-five feet would not prevent the roots of his poplars from reaching his apple trees. I have seen the row of trees adjoining the poplars droop and die, in consequence of the poplars' roots exhausting the soil. I would recommend Mr. Mitchell to use the plough to cut the roots off the poplars, or otherwise he will find that they will rob his apple trees.

R. H. SARVIS.

Hibbert.

Note by Ed.—If he does run such a furrow, and cut off poplar roots of any size, he will surely have a row of young trees come up in the furrow, for every broken root will throw up sprouts.

Evergreens for Farmers.

It is a fact which ought not to be, that more evergreens are planted in our villages and cities, than in the country by farmers. The evergreen is essentially a protective tree against cold and wind, more becoming in winter than summer, and in proportion as the weather is severe and the aspect of the landscape bleak and forbidding, does its presence add comfort and cheerfulness. About country places, in northern latitudes, where there is ample room for both deciduous and evergreen trees, hardly too many of the latter can be planted. They should be freely set in lines about the grounds of the dwelling, the outbuildings, garden and orchards, to form wind-breaks, and add warmth, shelter, and a snug, cosy look to the scene in winter.

Where shelter is the main object in view, and the planter is not cramped for space, a belt should be set, at least one rod wide, and in many situations large groups could be formed with the best results. For every purpose and situation there is no other evergreen which equals the well-known Norway Spruce. Although it is one of the giants of the forest in a state of nature, yet this species bears pruning, and may be relied on when planted thick and sheared into hedge form. For wide belts and groups the Scotch, White, and Austrian Pines are likewise excellent.

Success in growing a fine hedge depends very much on making the right beginning. Trees of nearly even size should be selected, although some irregularity may be corrected by after pruning. The lower branches should lie upon the ground. No after treatment can remedy the defect of a naked trunk. They should not be too large, and great care should be taken to keep the roots intact and from exposure to sun and wind. From the middle to the end of spring is the best time of the year for transplanting.

Another very important use of evergreens in the country is to form barriers along the sides of roads that are liable to be filled with snow-drifts. A double line of trees, set five or six feet apart in the row, and the rows placed half a rod asunder, would, in five years, afford complete protection against drifting snow. Railroads might be cheaply and most effectually barricaded against drifts in this manner.—*Rural New Yorker.*

The Filderkraut Cabbage.—James Vick says that no cabbage with which he is acquainted has given such general satisfaction as the Filderkraut. It is very conical or "sugar-loaf" in form, is very solid, and keeps well. It forms a solid head even under unfavourable circumstances, and scarce three plants out of an acre fail to make a fair marketable head.

Davidson's Thornless Raspberry.—Mr. H. Collins, writing to the *Gardeners' Monthly*, says that the fruit of this variety is large and fine, earlier than the Doolittle, matures its whole crop, while the later berries of the Doolittle are so small and dried up as not to be worth picking, and that the comfort of picking from plants that are free from thorns is no small consideration.

The Slug which appears on the leaves of the pear, plum and cherry, usually on the upper surface, can be easily destroyed by dusting the tree thoroughly with slaked lime or unleached wood ashes, as often as the slugs make their appearance. Indeed, the dry dust from the surface of the ground, if thrown with a little force upon them, will usually kill them.

The Logan Grape.—It bears full and ripens, colouring the earliest of any grape I have. It is not as sweet as some, but in view of its hardiness, and the fact, too, that the fruit is not injured by light frosts, I cannot but regard it as a valuable variety. It bears the winter well. Still, the hardiest here needs some protection in cold weather, at least laying down and being kept close to the ground.—M. Quinby, in the *Rural New Yorker.*

Tomatoes.—Sow in boxes of about two feet by one and a half, and six inches deep, in earth of the richest kind. Cover the seed half an inch deep. If you have a hotbed, place this box in it; if not, set it in a warm room, near a sunny window. Water occasionally. When the plants are an inch or two high thin them out to about an inch apart. So soon as the weather is free of frost, transplant in moderately good garden soil, not rich, as that would make fine vines, but poor fruit.—*Rural New Yorker.*

Grape Vines and Pear Trees in Enfield, West Riding of Middlesex.—I have a number of grape vines in cultivation, principally Clinton and Delaware. The Clinton has mildewed as well as the Salem. The others have so far kept healthy, contrary to what is generally reported, that those of the Labrusca species are most subject to mildew. The pear blight with me affects only some kinds, the others are exempt. The Tyson invariably blights very badly, while the Flemish Beauty, although only twenty feet from the Tyson, is as healthy and thrifty as a Lombardy Poplar.—W. G., in *Fruit Growers' Report.*

New Rose, Princess Christian.—This has received three first class certificates during the year 1869, from the Royal Horticultural Society, Royal Botanic Society, and at the Crystal Palace Rose Show, and has been thought worthy of a coloured plate in the *Florist and Pomologist* for January, 1870. It is described as being a very large flower, globular in the bud state, and finely cupped when expanded, the colour ranging from deep salmon to rosy peach, according to the age of the flowers, and holding on clear and bright to the last. It blooms continuously and abundantly from June to November, is robust, and of a hardy constitution. It is introduced by Mr. William Paul, of Waltham Cross, near London, England, and will be sent out by him this spring. We hope our rose fanciers will keep their eye on it, and that we shall soon have the pleasure of seeing it in Canada.

Apples in Gilford (South Riding of Simcoe).—Mr. Thomas Maconchy reports that the American Golden Russet and the Roxbury Russet bear well; that the Baldwin and Colvert, both as standards and dwarfs, are very fine; that the Duchess of Oldenburgh and Early Harvest do very well; the Spitzenberg and Snow apple are good, and Gravenstein very good; the Keswick Codlin is prolific; the King of Tompkins is very fine—extra; the Pomme Grise a shy bearer; Northern Spy very good; Primate good and bears well; Red Astrachan very fine; R. I. Greening pretty fair, and St. Lawrence very good.

The Best Summer Apple.—At the winter meeting of the Western New York Horticultural Society, the Red Astrachan was proposed by several of the most distinguished horticulturists as the best summer apple. A few of the members objected to it on the ground that it did not ripen its crop at one time, but extended its period of ripening over several weeks; while others valued it on that very account, its gradual ripening enabling them to market all the fruit without occasioning a glut in the market. The fruit dealers spoke of its handsome colour, which made it sell well; a few complained that the fruit with them was imperfect. F. R. Elliott, of Cleveland, Ohio, said it was one of the best market varieties at the West. We believe this variety succeeds well in all parts of Ontario, particularly in the colder parts, and on clay soils, and is one of the best, if not *the best* summer apple we have.

Apiary.

Bees, their Nature and Habits.

ARTIFICIAL IMPREGNATION.

According to a promise made in my last, I now publish what is claimed to be a new discovery for securing "artificial impregnation," in other words, a method whereby a queen may be caused to mate with selected drones. I give the method or experience of Mr. Freeman Moore, as written by himself, and published in the *Bee-keeper's Journal*, reserving any further comments of my own. He says:—

"I suffered great loss of time and sad disappointments in having my young Italian queens mate with the black drones of my neighbours, thus producing a hybrid progeny, which was, of course, worse than useless to me, and I resolved to try some plan whereby my young queens might be fertilized by drones of my own selection. Various were the plans I tried, but all failed, except in one instance, when I had a young wingless queen fertilized by one of the many experiments I subjected her to; but as I saw no evident signs of fertility at the time, I released her into a well stocked nucleus, and set about inventing some other plan. After trying various contrivances, of no importance, as I have since learned, I opened the small box containing this invalid queen, and to my surprise, she had filled nearly all the cells in a central card of worker comb. I carefully examined and found the eggs regularly deposited in the cells, and not having the appearance of being deposited by a drone-laying queen. I carefully closed the box to await the result, and in twenty-one days worker bees emerged, and none but workers. This now convinced me that something new was to be learned, yet I was but little better off now than at first, for I had no idea which plan was the successful one. One thing I could rely on was, that this circumstance proved beyond all doubt that it was possible to fertilize queens in confinement, even if they were hatched without wings. That I stood alone in this discovery I had no doubt, for long since it has been publicly taught and admitted as an established fact, that young queens are fecundated only on the wing high up in the air, and all imperfect ones that cannot fly are incapable of impregnation. About this time, through some correspondence with Mrs. Tupper, she informed me that she had also for years been trying similar experiments, with very satisfactory results. This encouraged me to make known to her the results of my experiment, asking her counsel and aid in fully developing this new theory. My first experiment was as already related; the second was precisely the same as Mr. Henry Atherton had related to me some years previous. I will give his own account in substance."

'I purchased a colony of bees that had swarmed twice, and on examining the second swarm, found three or four young queens during the process of hiving. I caught one of them, put her into a tumbler, set it in the window, where the sun shone nicely, and as I concluded she would be lonesome alone, I caught two drones because they could not sting me, and put them in the same tumbler with her. Almost as soon as I released the drones (he said with an oath) the queen fell on one of them and instantly stung him to death.' I remarked that this certainly was a mistake, as they never used their stings except on rival queens. He again with a greater oath declared that he knew better, for he saw that queen *'sting that drone stone dead,'* and was unable to extract her sting without tearing out her own entrails. Still, he said, the queen lived, and he released her into a swarm with her intestines still protruding.

"From this circumstance the reader can easily divine my convictions, that it was a case of fertilization beyond all doubt, as it is a known fact that the drone dies suddenly in the act of copulation, the genital organs adhering to the queen. As my friend was entirely ignorant of the natural history and instincts of the bee, he had confounded these widely different acts. I simply give this to do justice to my friend Atherton, for had it not been for this remarkable circumstance I should probably never have thought of investigating the subject.

"I now give the exact course I pursued. Having found, about one o'clock in the afternoon, a young queen of extraordinary beauty before one of my hives which had reared a young queen, and this was about the eighth day after hatching, I lifted her up and found her wings deficient. I well knew that she never could fly, and took her as a subject for experiment. Knowing that she left the hive on her wedding excursion, and had fallen to the ground when attempting to soar aloft into the air in pursuit of the drones, and believing that this was the proper time to secure success, I at once caught four or five extra drones, and entering the house took a wine glass and placed it in a window where the sun shone brightly, and put the queen and drones therein. The drones flew in the glass to escape, and the queen tried to fly, but could only hop and flutter. She noticed the drones, but they paid no attention to her, and in a short time they quieted down and stood still on the bottom by her side. I then became discouraged and gave up all hope of success, and to make it worse, my mother laughed at and made fun of me. I left the room chagrined and vexed to think that I had thus failed and become a laughing stock: but my sorrow was of short duration, as my mother informed me that the queen had just killed one of the drones. I at once became excited and ran into the house, and to my joy and surprise found a drone "stone dead," and evident signs of fertilization visible on the abdomen of the queen. I removed her at once to a nucleus box, introduced her, and in three days she laid eggs and has done well. I sold her for ten dollars. I tried two others, four days old, the next day, but failed entirely. Those were perfect queens, and could fly. I tried them on the fifth and sixth days after hatching, but did not succeed. I then left them to fly according to their instincts, to meet the drones in the air. This they both did on the eighth day. By this you see I was successful with two queens, and failed with two. Not being discouraged, I resolved to change the programme, for I discovered that the drones and queens wearied themselves, and soon became exhausted. To remedy this evil I cut a large hole in one of my honey boards, so as to admit a large lamp chimney. I then placed wire cloth on top of the frames some six or eight inches square, and set the lamp chimney level on the wire cloth, inserting the glass chimney through the hole cut in the honey board. I then watched for some of my young queens to make their appearance, and as soon as I discovered one I caught her and ten or twelve drones, dropped them into the top of the chimney, and corked it with paper, and the first trial the queen mated in less than one hour with one of the drones. I removed her and cut off one of her wings so that I could not be deceived. The next trial I failed entirely, for reasons I cannot assign. I have tried the tumbler and glass chimney very often since, and succeeded about half of the time. I succeeded in one instance where a queen had hatched without wings, having small knots where the wings should have been. This I accomplished with the tumbler, as first related. This queen was clumsy, and did not become very prolific, and I lost her in introducing her to strange bees, but reared some extra queens from her brood. I have tried Mrs. Tupper's process, as she described it to me, and was successful to a reasonable extent.

"One point more and I have done, for this time, and that is, that I have seen young queens that had mated three or four times with different drones, but notwithstanding I am satisfied that such queens have really been impregnated only with the last drone. My reasons for believing so are founded on facts obtained by close observation. First, I never saw a queen yet that mated with more than one drone in the tumbler, the glass chimney, or by the process described by Mrs. Tupper. I think I have discovered the cause why young queens fail to become fertile. After meeting the drones they always return to the hive with the genital organs adhering to them, and if caught immediately and confined over night, they almost invariably prove to be fertile. I caged over forty queens this summer, for this purpose, and not one of them left the hive the second time in search of the drones. Of this I am sure, for I clipped their wings. By caging the queens as soon as they return, you prevent the workers from detaching the organs of generation adhering to them. I have found that to remove this immediately will usually prevent impregnation. I have removed it from some queens three or four times this season; and thus prevented impregnation. Every observing apiarian, if this subject ever attracted his attention, knows that the workers will remove this foreign substance from their queen, and it is common in a short time to see one of them coming out with it. This untimely removal, in my weak judgment, is the true cause of such queens mating with different drones—my experiments, at least, go far to establish this fact; and if my experiments prove this point, the theory that queens are often *fertilized* with several drones is erroneous, and this cannot be the reason why the progeny of a *pure Italian* queen contains some *workers* purely Italian, whilst others are as purely the common black bee."

The difference between Mrs. Tupper's method and the one described above is very slight—only a difference in the manipulation—the principle being the same. Mrs. Tupper confined the queen, five days after she issued from the cell, in a wire cage with the selected drones. The cage was then laid on the frames of the hive, and covered over and left there for 36, and in some cases 48 hours. The cage was about six inches square by eight inches long. Mrs. Tupper claims that in such a cage the queens were fertilized, though she admits that last year she had several failures. I also learn through private correspondence that J. E. Ponet tried a similar process last year, and believe he succeeded in getting several queens fertilized by selected drones. Rev. Mr. Truesdell, of Warwick, P. Q., was also experimenting last year, testing the process given by Mrs. Tupper. How he succeeded I have not yet learned. I hope he will give the results of his experiments in your journal for the benefit of your readers.

I fully intended to test the process last year, and did make one trial, in which I failed, but was prevented from giving it any further attention. I still have my doubts whether any queens have ever been fertilized in confinement. It is so contrary to their nature and habits that I should feel half inclined to doubt my own eyes if I saw it.

It has been already stated, and is a well known fact, that it is the natural habit of the queens to mate with the drones on the wing, and in no other way, if left to themselves. I am therefore inclined to receive with caution any statements that they have been fertilized in confinement. I have long thought that some process would be discovered whereby impregnation would be in a measure under the control of the apiarian, but cannot readily believe in a process so at variance with their natural habits. In corresponding with J. E. Pond, of Roxboro, Massachusetts, who fully believed that he had succeeded in getting several queens fertilized artificially in confinement, he admitted that he was, to use his own words, "dead sure in only one case." Mr. Freeman Moore, in giving the results of his experiments which appeared in my last, states some things which are a little hazy, and cast a shadow of doubt over all. He does not believe the statement made by his friend Henry Atherton, that the queen stung the drone to death, but thinks that Mr. Atherton saw the queen impregnated by the drone, for he says a queen will not use her sting except on a rival queen. In this he is mistaken, for a queen will sometimes, when confined in a tumbler, sting to death a worker bee if introduced into the tumbler with her. Hence there is no reason to doubt that, in some cases, she would sting a drone to death if introduced to her, and it is altogether probable that Mr. Atherton was quite correct in saying that the drone was stung to death. I believe, however, it is not generally known that a queen will sometimes, when confined, sting other bees, as well as rival queens. Again, he says, "my mother informed me that the queen had just killed one of the drones, and to my joy and surprise I found a drone 'stone dead,' and evident signs of fertilization visible on the abdomen of the queen." Now, the drone does not die instantly after coition; therefore in that he was mistaken, and he may have been mistaken in thinking that the queen was fertilized. True, he says he removed her to a nucleus box, and in three days she laid eggs and did well. But she may have left the nucleus box on the first day after introduction, and mated with a drone on the wing. Indeed, it seems more reasonable to suppose that she did so, as a queen generally lays in 48 hours after impregnation, and 48 hours after the first day she commenced to lay, which would make it just three days after he introduced her into the nucleus box, at which time he said she commenced to lay. I fear the experiments have not been carefully conducted, and that after all it may turn out that the queens were fertilized in the usual manner. On the other hand, one can hardly believe that Mrs. Tupper and others have been mistaken in every instance. Doubtless, it will, this season, be settled beyond dispute.

I have already stated that, when coition takes place, the organ of the drone is left attached to the body of the queen. If, then, a queen is confined with drones, and during this confinement the organ of the drone is found attached to the body of the queen, the question is settled. Those who may desire to experiment will remember that the queen goes out to meet the drones from five to eight days after issuing from the cell, and the proper time to confine her with the drones will be during that time. It will also be absolutely necessary to keep the queen confined in the hive until the proper time, lest she go out earlier than usual. I would advise keeping her in the hive until the eighth day, and then introduce her to the drones.

FURTHER EVIDENCE OF THE SUCCESS OF MRS. TUPPER'S PROCESS.

Since writing the foregoing article, I have received additional evidence of the success of Mrs. Tupper's method. Some time in early spring, last year, A. Malone, Esq., of Garden Island, wrote to me to know if I had yet published Mrs. Tupper's process, as he had not seen it. I wrote to him, describing the process, but not knowing how he had succeeded with it, I made enquiries of him by letter a short time since, and I subjoin his reply. It is quite satisfactory. I hope Mr. Malone will give us notes of his success the coming season. I do not think it at all necessary to remove the queen from the stock on which the cages containing the drones and queen to be fertilized is placed. By removing the honey board, three cages could be placed on the top of one of my hives at the same time. Let others try it and report.

J. H. T.

"J. H. Thomas, Esq, Brooklin, Ont

"Dear Sir,—Your favour of the 14th inst., asking for information relative to the fertilization of queens by Mrs. Tupper's process, is before me, and in reply I would beg to say that I had queens fertilized in that way several times last season. I commenced early in the spring to try and raise a number of colonies from one, as described by Mr. Tallup. (I think in the January number of the *Bee Journal*, for 1868), and having lost every queen I raised by letting them fly out for fertilization, I at last tried Mrs. Tupper's plan, and succeeded. I first made some small Nuclei hives, and inserted three frames in each (with brood and comb in them), and placed a queen cell in each in such a manner that by turning a button I could see the cell. As soon as the queen was hatched I caught her and placed her in a cage made six inches square by eight inches long, two sides of the cage being wood, the rest wire, and placed a good number of worker bees in with her, and put the cage on top of the frames in one of your hives containing a good swarm of bees, having first removed their queen. When the queen was five days old, that is, on the fifth day, I took out all the worker bees, and placed seven nice large *drones* in with the queen. I have a door in one of the wooden sides of my cages, which makes it handy to put in, and also to catch the queens. I left the queen and drones together forty-eight hours in the cage, having placed them back again on top of the frames, and replaced the cover and plugged up the ventilators which are in the sides of the cover, to keep out the light. Of course I put some honey in the cage, out of the reach of the bees below in the hive, to keep the queen and drones from starving. Each time on examination, I found (with one exception) a dead drone, having all the end of his abdomen burst open, and twice I noticed evidences of copulation on the queens. To make myself doubly sure that they were fertilized by this method, I introduced the queens into new swarms, and closed the slide, so that nothing but a worker bee could go in and out, and all the queens, (with one exception, as mentioned above) in a few days commenced laying, and reared nicely marked Italian workers. The reason those that flew out for fertilization were lost is, I think, that on account of my living on an island, and having very few drones, the queens attempted to cross the river and were lost.

"Yours, etc.

"A. MALONE."

Household.

Dry Cellars and Door yards.

In building a house, few people think as they ought of the future, or that in all probability their lives will be spent in it. A farmer, when commencing to build a farmhouse, usually begins by putting some temporary kind of foundation under it; oftentimes only of block, the refuse of the framing timber used.

If a cellar is dug, it is often a mere hole in the centre, with the earth thrown out on one side, there to remain an unsightly heap or heaps, as the case may be, until nature covers the abomination with grass or weeds, thereby hiding somewhat its untidy appearance.

Moreover, houses are almost all built in dry weather, and often a level place is from necessity selected as the site. When wet weather comes on in the fall, there is no possibility of moving out of doors for the mother and children, without splashing through the mud that always accumulates around any frequented building. Dirt, filth, and wretched appearances are the result, instead of a clean, comfortable dwelling. Every man who enters the dwelling brings in bootloads o mnd and mire to be distributed through the house; and no wife's temper can be expected to bear this unnecessary annoyance. Recollect, too, this misery usually lasts a lifetime. The remedy after the house is built is very difficult; but is easily provided if thought of at the outset. I have seen hundreds of such muddy door-yards; in fact, to find one ordinary farmer's house *without* such a muddy mess all aronnd it in wet weather, is the exception, and not, as it ought to be, the rule. Now, all this is most readily avoided by a small outlay of labour and foresight at first as will be seen by following the accompanying suggestions. I will venture to say the outlay will be amply repaid the first and second year in the increased profit of a dry comfortable door-yard, and raised terrace or platform round the house, and an excellent frost-proof cellar under it.

Let us now commence to lay out our foundation, and suppose we are going to build a frame house of about thirty by twenty, or any other size that may suit the means of the builder.

I would by all means advise those who can afford it to build large enough at first, and those to whom it would be too expensive to do so, ought to calculate so to arrange the small house they build, that in future they can add a portion to it, as their family increases, or means to build more extensively are gained. To this class of builders, who must in the ontset limit their accommodation, I would urge that it is always better to so arrange the house, that the passage way passes along one (say the west) side of the house, thus building the present house on one side of it; so that in future any additions can be readily put to the west side of it, without interfering with the architectural appearance of the building, leaving of course the necessary projections to attach the addition to at some future period. This foresight also allows of the first house so made to answer as a kitchen and offices, and the new addition, when completed, to be used as a parlour, and a better and more convenient class of rooms.

As I before said, we will now proceed to stake out our foundation, say as above, twenty by thirty, and as an absolute necessity also to dig a cellar *under the whole house*. The excavation may be deeper or otherwise according to circumstances of drainage; but we will suppose, as is most commonly the case, that the house must be built on a comparatively level place, with only about four feet drainage fall at the lowest. The surface earth that comes out first must all be put away towards the front, but distributed in small heaps, and at such a distance only as will enable it hereafter to be thrown back to enrich the surface of the front.

The excavation of a cellar of four feet deep will, of course, cover an area around the house four times as great if spread over it one foot deep. A terrace would then be formed, raised one foot all round the house, and extending nearly twenty feet in all directions. Now, having thrown back to the front or sides of the raised part all the surface earth, it can afterwards be spread evenly on that portion to be used as a flower garden, or better still, as a lawn. On this raised portion, Mamma or the children can at all times and seasons move about in cleanliness and comfort; and, moreover, it forms a most ornamental addition to the house, as the edges must be all trimmed straight, and laid at an angle of about thirty degrees, and sodded over so as to prevent foundering. It is not a long or troublesome job to sod over the whole plat or terrace; about two days' work of two men and a team will cut and haul all the sod requisite, provided a plough of the wide share construction is used to cut the turf, and about two days more will lay it down, and finish it completely. The turf must not be cut thicker than two inches, or it will be troublesome and heavy to haul. Before the sods are laid, the land must be all perfectly level and smooth, and the turf when complete must be patted, or rolled level and smooth. An ordinary pavior's rammer is an excellent thing to level turf with, and can be made in half an hour.

Our cellar being now dug, and terrace made, we next proceed to form our cellar walls. The best course for a farmer to adopt is to erect round cedar posts, of say about seven or eight inches in diameter, and nicely barked, or carefully squared up, the lower end sunk about one foot into the cellar floor, and the upper end morticed into the sill above, which rests on these posts, which should not be more than six feet apart Stretchers, four by four, must be let into the posts at the back; one at the bottom, about six inches up; one at about two and a half feet, and one at about five feet from the ground. Less in number than these will not support the earth, without danger of bulging in, and thus looking unsightly. At the top a fillet or batten is nailed to the under side of the sill, about two inches from its face. Now you must take two ply of inch boards (rough edge cedar is infinitely the best) and stand up all around, the outer ply breaking joint with the inner. They must be squarely and carefully cut off at the top to fit tightly against the fillet or batten, and yet to fit up close under the sill. Square edged cedar is difficult to be obtained; but rough edged can be had anywhere that sound logs can be got to a saw mill. It is much cheaper and better, as well as more durable, than any other lining that can be used: pine will decay directly. After all the boards are carefully put in their places, the earth is to be filled in, and the water table fastened against the sill. To protect the sill from decay the water table should be nailed to inch stripe fixed upright on the sill at every two feet all round the building. This space between the sill and water table will defend, for many years, the sill from decay. Immediately under this, another cedar board is to be nailed on, still leaving the space; this board will allow of the earth lying close against it, but yet leave one inch behind and between it and the sill, to prevent decay; and this arrangement also admits of renewal in after years without disarranging the main portions of the cellar lining. The careful foresight thus so cheaply used will cause the wooden foundations of a house to remain sound for thirty years or more; and without it the sill would show signs of decay in five years. Of course all rain must be directed by spouts away from the foundations, if the cellar walls are to be kept dry and in good order.

A drain must be dug, if possible, but in some localities this cannot be done; and where all surface water is kept from running into the cellar, and there is no absolute spring, a very good substitute may be made by digging a well about four to six feet below the bottom of the cellar, but outside the house and close to it, with a communication from the bottom of the cellar floor by a drain. A pump in this well will, at all times, enable you to free the cellar from water in half an hour; and as this would not probably be required except in exceedingly wet weather the labour would be little.

It is quite clear a cellar must be had, and if the circumstances are not worse than described above, either remedy of drain or pump will be found to answer. We must have both cellar and earth to raise round the house, and this is far the cheapest way to obtain it. What is the extra expense entailed by doing this? The contents of the cellar will be about ninety or one hundred cubic yards, and can generally be excavated for ten or twelve cents a yard. To do otherwise than here described, on the score of saving of expense, is very poor economy. With such a good cellar the butter of ten cows will, from its better quality alone, pay all the expenses in two seasons, if not in one. Consider what an advantage it is to have such an excellent cellar, with everything cool and sweet in the summer, and free from frost in winter. Any root cellar, for house purposes alone, ought to be built just the same, but detached from the house, under some shed or other building to keep off the rain; it can be made to communicate with the cellar by a door. The roots, potatoes or turnips can be got into the root house through a trap in the upper part, and thence into the cellar for use by the door of communication. A small ice-house about six feet square, also with a door of communication with the cellar, would be an exquisite luxury, and cost hardly anything to build. Full particulars for building such an ice-house, as it exists attached to my cellar, will be given in some future number. C.

Earth Closets.

The only positive requisite is the dry earth or dust. A supply is easily shoveled up from the roads in August or September, but if none was secured, and if artificial drying is inconvenient, of if none can be scraped up from sheds, the siftings of coal ashes answer very well, better as a friable divisor than the earth, facilitating the intermixture of the manure with the soil to which it is applied, but perhaps not quite so effectual in retaining all its good qualities. But these will not escape if the ashes are used in sufficient abundance to absorb all the liquid without becoming saturated with it. A common tinful of this very dry ashes or dust poured after every use of the seat, will effectually prevent everything offensive to either sight or smell. It is best received on the ground, as if any wooden receptacle is used it will absorb some of the liquids, and as the dust cannot follow them into the wood, the latter will soon become offensive. And it is more convenient to shovel the harmless compost off the surface of the soil than to lift it out in a wooden box. I have seen plans of self-working seats much simpler than those of Mr. Moule, but it seems scarcely worth while to take the space necessary to describe them, when an old tin cup answers perfectly and conveniently.—*Country Gentleman.*

A Working Dress for Farmers' Wives and Daughters.

To the Editor.

SIR,—I trust my fair friends will pardon me if I draw attention through your journal to a matter of domestic interest, which I think deserves more notice than is usually accorded it—namely, the every-day dress of our farmers' wives and daughters. Many of our farmers' daughters are trying to follow city fashions regarding dress, to an extent beyond what is advisable for their own good, or the comfort of others. How often does it occur when they (the girls) are called upon during the forenoon, or while engaged in house work during the after part of the day, that visitors are kept waiting for an unpardonable length of time in some gloomy-looking room into which they have been ushered, though the callers may only have some trifling business which would take but a few minutes to attend to; yet the parties must wait, no matter what haste they may be in. When the girls do come, they are dressed to perfection, and certainly it would be *cruel* then for the callers to leave immediately after they did their little errand, considering the time and trouble which it has taken to make the girls "fit to be seen."

Now, Sir, do you not think so much dressing is needless for farmers' daughters just for receiving callers. To be sure, many girls are *not* "fit to be seen" in the dress in which they do their house work; it is so dirty and ragged, and worn so slovenly, that it is no wonder that they are ashamed if thus caught. But might not a dress be devised which would be both neat in appearance and convenient for working, in which the girls could perform their household duties and receive callers during the forenoon. Perhaps the girls are ashamed of being caught at work, hence do not like to be seen in their working dress; but they have no more reason to be ashamed of work or their dress than farmers' sons; and the boys hardly ever run and hide in the stable or barns when a lady appears in sight, but generally are glad to meet them, though it be in their working dress. The mechanic does not feel ashamed if met in his working clothes by a young lady; nor does the plough-boy apologise for his dress if caught by half a dozen ladies. I like to see the ladies dressed neatly; but why dress in such extremes, sometimes in dirt and rags, then in silks and satins? Again, so much precious time is lost both to the callers and the called, while very often it is a great inconvenience to both parties, but more especially to the callers. I hope the hint will be taken, as it is meant, in good part, and trust that some abler correspondent, perhaps of the other sex, will take up the subject.

York. CULTIVATEUR.

A young Portland woman, recently married received from a gentleman friend a large corn broom as a wedding present, accompanying which was the following piece of poetry:

"This trifling gift accept from me;
Its use I'd recommend,
In sunshine use the brushy part,
In storms the other end."

A very fine dressing for the hair may be made by mixing good pure glycerine with rosewater, one part of the former to three of the latter. Another has been found to make the hair soft and moist, and to retain these properties for some time. This consists of the white of eggs mixed with equal parts of alcohol, or used without the alcohol. After applying it the hair should be thoroughly washed with warm water.

PROTECTION OF WOOD FROM FIRE.—Woodwork is protected from fire by being painted with a mixture consisting of 5 parts of alum, 7 parts of rye-meal paste, and 30 parts of previously washed, finely divided clay. This mixture is used for woodwork not exposed to the open air. For woodwork so exposed, a mixture is used consisting of 2½ parts of crystallized sal ammoniac, 1 part of white vitriol (commercial sulphate of zinc), 2 parts of joiners' glue, 20 parts of zinc white, and 30 parts of water. These mixtures have been found to prevent wood bursting into flame on ignition, and to greatly delay its destruction even when severe fires are raging.

Poetry.

WHICH?

"Which shall it be; which shall it be?"
I looked at John—John looked at me
(Dear patient John who loves me yet,
As well as though my locks were jet,)
And when I found that I must speak,
My voice seemed strangely low and weak;
"Tell me again what Robert said!"
And then I listening bent my head.
"This is his letter:

"I will give
A house and land while you shall live,
If, in return, from out your seven,
One child to me for aye is given."
I looked at John's old garments worn,
I thought of all that John had borne,
Of poverty, and work and care,
Which I, though willing, could not share;
I thought of seven mouths to feed,
Of seven little children's need.
And then of this.

"Come, John," said I.
"We'll choose among them as they lie
Asleep:" so walking hand in hand,
Dear John and I surveyed our band.
First to the cradle lightly stepped,
Where Lillian, the baby, slept.
A glory 'gainst the pillow white;
Softly the father stooped to lay
His rough hand down in a loving way,
When dream or whisper made her stir,
And huskily he said, "Not her—not her."
We stooped beside the trundle bed,
And one long ray of lamplight shed
Athwart the boyish faces there,
In sleep so pitiful and fair!
I saw on Jamie's rough, red cheek
A tear undried. Ere John could speak,
"He's but a baby yet," said I,
And kissed him as we hurried by.
Pale, patient Robbie's angel face,
Still in his sleep, bore suffering's trace;
"No, for a thousand crowns, not him,"
He whispered, while our eyes were dim.
Poor Dick! bad Dick! our wayward son,
Turbulent, restless, idle one—
Could he be spared? "Nay, he who gave,
Bid us befriend him to the grave:
Only a mother's heart can be
Patient enough for such as he.
And so," said John, "I would not dare
To send him from her bedside prayer."
Then stole we softly up above,
And knelt by Mary, child of love.
"Perhaps for her 'twould better be,"
I said to John. Quite silently
He lifted up a curl that lay
Across her cheek in wilful way,
And shook his head. "Nay, love, not thee."
The while my heart beat audibly.
Only one more, our eldest lad,
Trusty and truthful, good and glad—
So like his father. "No, John, no—
I cannot, will not, let him go."
And so we wrote in courteous way,
We could not drive one child away;
And afterward toil lighter seemed,
Thinking of that of which we dreamed,
Happy in that not one dear face
We missed from its accustomed place;
Thankful to work for all the seven,
Trusting the rest to One in Heaven!

Agricultural Intelligence.

Double-furrow Plough Competition.

The following account, taken from the Edinburgh *Scotsman*, of a trial of double-furrow ploughs near Dalkeith, Scotland, will be interesting to our readers from the fact of the implement being regarded as originally a Canadian invention :—

A double-furrow plough competition, under the auspices of the Dalkeith Agricultural Society, took place recently on the farm of Wester Cowden, near Dalkeith. Double furrow plough trials have become so common of late that agriculturists are apt to forget that such implements were introduced to their notice many years ago. Apart altogether from the original Somerville plough of this description, a double and triple furrow agricultural implement of a form allied to that now in use, was brought under the attention of farmers in the United Kingdom in 1862 by Mr. Sovereign, who came over from Canada for the purpose of introducing it, but on account of want of patronage was compelled, after expending both time and money, to retire to his native wilds in the Far West. Since then, local inventors have been endeavouring to improve on the Canadian invention. Within the past few years agriculturists in Scotland have recognized the immense value of the double-furrow plough, and among the many inventions which are considered improvements on the original implement, considerable doubt has existed as to which would prove the best over all the different qualities of land. With this view competitions have been held all over the country, and it may reasonably be held that that which has taken the majority of prizes maintains the precedence over the others. It has been said that a plough may make better work on stiff land, and yet be far behind others on light, easily-wrought ground, or *vice versa;* but the implement which can secure the approbation of agriculturists on both varieties of land may well be looked upon as the champion plough. In order to decide this point, the Dalkeith Agricultural Society recently offered prizes for the best double-furrow plough, and the result was an interesting competition. Ont of the seventeen ploughs which were entered, thirteen came forward to try conclusions. The ploughs were first tried on a lea field composed of stiff clay, and after ploughing their allotted space they were taken to stubble ground which had been manured, on which the capabilities of the different ploughs were fully tested.

The following are the results of the trials as tested by the dynamometer, under the hands of Mr. Slight, practical engineer to the Highland and Agricultural Society : Messrs. Gray & Co.'s, Uddingstone, G. B., 6 cwt.; second trial, 5 cwt. This trial was particularly interesting, inasmuch as Gray's plough was tested by the dynamometer with high-crested irons, which drew 6 cwt. At the request of the judges, the plough was tried with plain or obtuse cutting irons, and the draught of the plough with these irons was only 5 cwt., or exactly the same draught as that exhibited by a single-furrow plough made by Ponton, which was tried over the same land, drawn by two horses.

LEA—1st, Messrs. J. Gray & Co.'s, 5 cwt.; 2nd, Wm. Shivas', Aberdeen, 7¼ ; 3rd, Mr. Mitchell, D.F.C., Peterhead, 7. Commended, Mr. Pirie's, Keith, 6½ ; Mr. Murray, H.G.L.M., Banff, 7 ; Mr. Murray, H.D.M.R., 8¼ ; Mr Mitchell, D.F.F., 7 ; Mr. Guthrie, Montrose, 6¾ ; J. Gray & Co., G.A , 7½ ; Mr. Anderson, Monifieth, 8¼ to 9 ; Wm. Kirkwood, Lothian Bridge, 9 ; Mr. Guthrie, 6¾.

STUBBLE—J. Gray & Co., G.B., 6¼ cwt.; Mr. Murray, Banff, 7.

It will be seen from the above that Messrs. Gray received the first prize of £5, and on the lea their plough was, with the square bottom, of as light draught as that shown by one of Ponton's swing ploughs, namely, 5 cwt. Only two ploughs were tried on the stubble, Gray's and Murray's, and the former had the advantage of half a hundred weight ; but on account of the prize winner going half an inch or more deeper, the draught, according to the dynamometer, was 2½ cwt. more than the single plough.

Manufacture of Beet Sugar.

We learn by the *Berlin Telegraph* that on the 24th of February a meeting was held in the town of Norwich, County of Oxford, for the purpose of hearing the report of Mr. D. S. Butterfield, who had been delegated by a number of influential men from Oxford, to Fond du Lac, Wisconsin, to examine the Beet Root Sugar manufactory at that place.

The report Mr. Butterfield gave was explicit and interesting, including the exact *modus operandi* in the factory, a statement of its capacity, number of working hands, a minute description of machinery, and the amount of capital invested.

He had brought two samples of beet root sugar with him, the one a half refined white, the other a very bright crystal coffee sugar, both grades, in colour as well as in taste, equal to any manufactured from the cane juice. The proprietors of the factory at Fond du Lac (an American and two Germans, the latter experienced in this branch of industry), had invested $16,000, partly in the machinery, which they valued at $12,000 (exclusive of the steam engine, which, together with the building and premises, they had rented), and partly in procuring the beet, of which they raised about eighty acres themselves. It being the first year they manufactured, and not having worked up their full stock of beet root yet, they were not able to give him an accurate idea of the amount of profit made, but were confident that this would not fall short of $3,000, clear of all expenses. Mr Butterfield had taken some beet roots that were raised in the vicinity of Norwich to Fond du Lac, and in getting them tested by one of the experts in the factory, it was found that they contained an equal quantity of saccharine matter (namely, 7 per cent.) to those raised in Wisconsin.

Mr. Wm. Oelschlager, who had been invited to attend the meeting, was then called upon to give an address on this subject. His experience being derived from factories of the old country, which are all conducted on a larger scale than those in the United States, his remarks were confined to the former. He gave first a short description of the manner in which the beet seed is raised, then how the beet itself, adding to this some statistics showing the direct as well as indirect profits to the farmer in raising beet, in preference to the continual growing of cereal crops. He then described the interior and working of a large factory, illustrating this description by sketches of the different machinery. He concluded by giving some statistics showing how much money was sent annually out of Canada for sugar ; for instance, in the year 1860, $1,600,000, which might be kept in the country if factories of this kind were started here, and pointing out the benefit the country would derive, irrespective of this, by the increase of labouring hands required for these factories.

After a great many questions had been put to both the gentlemen, and satisfactorily answered, it was proposed, seconded, and without dissent resolved, that a company should be organized, with a capital of $12,000, with power to increase : and Messrs. Moore, Barr, and Butterfield nominated as a committee to get subscribers.

A vote of thanks having been tendered to Messrs. Oelschlager and Butterfield for the efficient report and instruction they had given, the meeting dissolved after nearly four hours' sitting, with the fullest confidence that they will succeed in raising the required capital in a short time.

The directors of the Sacramento Valley Beet Sugar Association have determined to enter largely this year into the cultivation of sugar beets, and the manufacture of sugar therefrom.

English papers are agitating anew the long-vexed question of the Game Laws, and it is stated that a decided effort is about to be made to call public attention to them, with a view to their total repeal. For this purpose a meeting was held in Birmingham on the 3rd of March, when the formation of a Game Law Repeal Association was set on foot.

The Northwestern Flax Association held its first annual meeting at Cleveland, Ohio, on January 26th. A memorial to Congress was prepared, stating that over five hundred thousand acres of flax are grown for the seed in the States of Ohio, Indiana, Illinois, Wisconsin, Iowa and Minnesota, and praying for the continuation of the present duty on gunny cloth.

Miscellaneous.

Pet Toads.

FOR THE YOUNG FOLKS.

I had four little girls all very fond of pets of any kind, rabbits, kittens, dogs, birds,—nothing came amiss to them to fondle and pet. One day, whilst moving some old currant trees, we unearthed four large toads ; fine fellows they were, with beautiful goldon eyes. Each little girl at once pounced on a toad, and claimed it for her own ; and forthwith they conveyed all four away to a snug house made out of a condemned soap box. A pet is nothing unless it will eat at almost any time. Every child knows this, and the great delight is to feed them to repletion, and the pet toads were not to be an exception to this general rule. When I came into the house from the garden in answer to the dinner bell, I found much apparent distress amongst the young folks because the toads would not eat. They had been tried with every green thing in the garden, but without success ; eat they would not, and I was at once appealed to for assistance. I told the little ones to allow their pets to remain quiet until about sundown, and then we should see "what we should see." I promised them a treat. I was called away, and returned about eight o'clock in the evening. In the meantime, however, my brother had come home, and explained the habits of the toads.

I was greeted with shouts of "come and see, come and see, Papa." All four with short sticks, and every child clamouring and screaming with delight. The cause was soon apparent ; each little girl darted away to an old pile of boards under the balcony, and shortly returned with a fine fat spider on the point of her stick. These spiders were regular fat, jolly fellows, and quite large. The stick, with spider on its end, was cautiously lowered to within about three or four inches of the toad's mouth. You might distinctly see the expression of its eyes—they were fixed for one moment on the spider, when, "Hey ! Presto !" the tongue flew out directly from the mouth, and attached itself with inconceivable quickness to the spider, and as quick as thought the spider was transferred to the toad's throat and swallowed. Numbers of spiders and flies were thus disposed of, and it was really wonderful to see with what unerring aim the tongue was shot out, and the spider swallowed. Many young readers may not know that the toad is thus provided by nature with the means of procuring a living, the tongue being of that peculiar construction that at the will of the animal it can be shot out several inches. I really think some of the larger toads would catch a spider nearly four inches from his mouth.

These toads were then fed from day to day, and became quite tame, hopping about anywhere, and following the children for some yards when being fed. They were such favourites that they must, of course, have a name each ; and as at that time the Grand Trunk Railway was just being built, the toads received the names of the four famous contractors, "Jackson," "Brassy," "Peto," and "Betts." As they were all just alike and of equal size, it became necessary or advisable to mark them ; and accordingly each toad had tied round its leg a piece of coloured worsted. Each had a different colour, so that each child could identify her own. These toads were thus treated for several months ; but as winter came on I saw the necessity of not interfering by domestication with their natural hybernating habits, and consequently removed them to a distant part of the garden, upwards of two hundred feet away. They were all wished "good bye ;" I am not sure they were not absolutely kissed ; I rather think that belonging to the youngest certainly was. Next morning they were all back again and in their house. They had climbed up, as they often had before, over the corner of the box, and all were snugly ensconced under the shelter provided for them. We removed them thus several nights following, each time farther away; and each morning they were back again and had climbed into their box. I then carried them still further, into a piece of wood at least four hundred feet away, and next morning all were missing but "Jackson." He had returned and was again in his box ; but the rest never came back ; and "Jackson," when carried away once more, gave up the idea, and remained where put, at the foot of an old beech tree, with splendid accomodation to be found amongst the roots for a winter habitation.

I had brought up my children to see the folly of the usual conduct of young ladies, in showing disgust, and even screaming, at the sight of any animal or insect. I recollect that one of my children (all girls at that time) was dreadfully afraid of rats; her's was genuine horror at even the sound of them. I caught one in an iron cage, and made a pet of it, and for weeks we used to feed it, to familiarize the child with the sight and sound of it. This had the desired effect, so far as the child was concerned ; but the rat never made such a nice pet as the toad ; it always squeaked lustily when approached too rapidly, and even to the last it never was quite fearless. We let it go free when the end of its captivity was answered, and what ultimately became of it I never knew. C.

CARE OF WAGGONS.—When you leave a waggon heavily loaded to stand a number of hours, put a support under the axletree. The strength of wood cannot be estimated by what it will support for a short time. It will bear up a third more weight for a few minutes than will be required to break it by continued pressure. Waggons are abused very generally, by overloading. If the axletrees do not break, they are sprung, and the wheels warped, which causes the vehicle to run hard, and shortens its existence.

It is said that many farmers in England intend to grow oats largely in place of wheat during the coming season, in consequence of the low price of the latter cereal.

VARNISH FOR COARSE WORK.—A cheap but good varnish for coarse work can be made in the following manner : Take of raw linseed oil 30 pounds, litharge 1 pound, and white vitriol half a pound ; boil them together until the water is all evaporated. This is very durable, and costs but little trouble to make.

WHETSTONES.—When first putting a new whetstone into use, try water upon it, and if this keep the surface from being glazed or burnished, oil will not be needed. Some stones work better with water than oil. A dry stone is very apt to give a wire edge. It has been said that a little carbolic acid added to water will increase the friction on either a whetstone or a grindstone.

Advertisements.

SHOW OF STALLIONS.

A PREMIUM OF $250.

Open to any person in the Dominion.

THE show of Stallions for the North Riding of the County of Renfrew, will be held

AT BEACHBURGH,

On Saturday, the 7th May, 1870,

AT 12 O'CLOCK, NOON.

The North Renfrew Agricultural Society, at its meeting held on the 30th March last, passed a resolution giving a bonus of $250 (of which sum Thomas Murray, Esq., M.P.P., liberally contributed $50) for the best Draught Stallion, to stand for mares in the Townships of Westmeath, Ross and Pembroke, in the County of Renfrew, for the seasons of 1870 and 1871.

Any further information respecting the matter can be obtained from

N. W. JACKSON, Secretary.

Westmeath, April 1, 1870. v2-4-1t

W. EWING,

SEEDSMAN,

100 McGILL STREET, MONTREAL,

OFFERS FOR SALE CHOICE

Farm, Garden & Flower Seeds,

BEDDING PLANTS, &c.

Descriptive priced Catalogues forwarded on application FREE.

Also imported and home-grown SEED GRAIN. Choice samples. v2-4-2t

PEACH-BLOW POTATOES FOR SALE,

OF very fine quality, sound and fresh. Price, sixty cents per bushel. Address, Mr. ROBERT WOOD, Bow Park, Brantford P. O.

CHEVALIER BARLEY,

OF superior quality, for sale. Grown last year from seed imported from Scotland. Price, $1 per bush. Apply to Mr. ROBERT WOOD, Bow Park, Brantford P. O. v2-4-1t

Superior Southdown Sheep for Sale very cheap.

A SMALL flock having Jonas Webb's blood, comprised of Seven Ewes in lamb (some have lambed), three Yearling Ewes, and one Yearling Ram bred by Mr. Irving, of Newmarket. Price for the whole, $115. Also an elegant "Anglo Saxon" 3 year old Mare: price $150. Apply (post-paid) or personally to J. WRIGHT, Wardsville. v2-4-1t

PROVINCIAL EXHIBITION.

Agricultural and Arts Association
OF ONTARIO.

THE Twenty-fifth Provincial Exhibition will be held at Toronto on the

3rd TO 7th OCTOBER NEXT.

Prize Lists and full particulars will be published in due time.

By order of the Council.

HUGH C. THOMSON,
Secretary.

Toronto, April 15, 1870. v.2-4-2t

DARK BRAHMA EGGS
FOR HATCHING.

I AM now prepared to furnish Eggs from **First Prize Imported Dark Brahmas**, weighing 25 lbs. per pair. Price through April, May and June, $5 per doz.; through July, August and September, $3.

ALSO FOR SALE,

A few young DARK COCKS, from six to seven months old. Price $6 each.

Address,
H. M. THOMAS,
v.2-4-1t* Brooklin, Ont.

LIGHT BRAHMA EGGS
FOR HATCHING,

AT $1 per dozen. All warranted pure. Orders accompanied by cash will be filled in rotation when addressed to

F. HIBTH,
v2-4-1t* Post Office, Yorkville.

Steel Tooth Sulky Horse Rake

Will do more work, easier, cleaner, and better than any other. Does not gather dust in the hay. Will rake over rougher ground. Is light and strong; well-made and nicely finished. The teeth are fine spring steel, independent of each other, and will yield to pass obstructions. Took FIRST PRIZE at the Provincial Fair, London, 1869. For testimonials, &c., send for circular. As our manufacture for 1870 is limited, orders should be sent at once.

JAMES SOUTAR & CO.,
Foundry and Agricultural Warehouse,
v2-4-6t. *Chatham, Ont.*

FOR SALE.

EARLY GOODRICH POTATOES at $1.25 per bag of 90 lbs., or $2 per barrel of 165 lbs. Guaranteed pure and of the best table quality. Light Brahma Eggs at $1.25 per dozen. White Aylesbury Duck Eggs at $1.25 per dozen. Silver Pencilled Hamburgh Eggs at $1.25 per dozen. Guaranteed pure bred and from the best quality of fowls. Delivered free at the Cars or Express Office. Cash orders addressed to WM. P. BRUCE, Mount Albion P. O., near Hamilton, Ont., will have attention. v2-4-1t*

Herdsman Wanted.

AN experienced and competent herdsman, to take charge of a valuable herd of Short-Horns. Good wages and a permanent situation to a first-class man.

Apply, stating experience and qualifications, with references, to JAMES O. SHELDON, Geneva, N. Y., U. S. v2-4-1t

THE BEST AND MOST COMPLETE PUBLICATION OF THE KIND IN THE WHOLE DOMINION,

AND THE QUALITY OF THE SEEDS OFFERED BY THE PUBLISHER ARE ADMITTED BY ALL AS UNSURPASSED.

Send a three cent stamp for a copy, to

J. A. SIMMERS,
Seed Merchant and Florist,
v2-3-2t *Toronto, Ontario.*

FRUIT TREES,
OF ALL KINDS.

GRAPE VINES,
OF ALL KINDS.

INCLUDING the new GOLDEN CHAMPION, Hothouse Grape, and Arnold's Hybrids,

ORNAMENTAL TREES,

Evergreen Trees, Flowering Shrubs, Roses, Raspberries, Currants, Gooseberries (English and American), Strawberries, Mulberries, Filberts, Walnuts, Butternuts, Hedge Plants, Hardy Sweet-Scented Peonies, Phloxes, Lilies, Gladiolus, &c., &c.,

FOR SALE AT THE

ST. CATHARINES NURSERIES,

By the dozen, hundred or thousand.

Additional Plants will be presented to those living at a distance, whose orders at retail amount to five dollars and upwards, to compensate for distant carriage.

Catalogue mailed to those sending stamp to prepay postage.

D. W. BEADLE,
St. Catharines.

MOUNTAIN ASH TREES.

A fine lot of Rowan or Mountain Ash Trees, at fifteen to twenty dollars per hundred, according to size, for sale at the

St. Catharines Nurseries.
v.2-4-1t D. W. BEADLE.

RASPBERRY PLANTS.

THE subscriber has for sale a choice stock of the Doolittle, Blackcaps and Lawton Blackberries, which he offers at seventy-five cents per dozen, mailed free of charge. Cash orders mailed in rotation. E. H. CRYSLER, Bartonville, Ont.

N.B.—I have Wilson's Early and Kittatinny's, which will be for sale next spring. v2-3-2t

NEW VERBENAS, 1870.

THE choicest Verbenas sent out this year by the most celebrated Verbena raisers, can be had at

The St. Catharines Nurseries,

At $2 per dozen. The best varieties of last and former years at $1 per dozen. Prices by the hundred and thousand given on application.

D. W. BEADLE.

NEW DOUBLE-FLOWERED GERANIUM,

The splendid double-flowered Geranium, *Gloire de Nancy*, for sale for 25 cents each, in small pots, at the ST. CATHARINES NURSERIES.

Price to the Trade on application.

D. W. HEADLE.

Gold & Crimson-leaved Geraniums,

"MRS. POLLOCK" and "SUNSET,"

These splendid leaved Geraniums can now be had in quantities to suit purchasers. Single plants, 25c. to 50c. each, according to size.

D. W. BEADLE,
St. Catharines Nurseries.

BEDDING PLANTS,

Of all kinds and finest quality, for sale by the dozen, hundred, and thousand, at the St. Catharines Nurseries.

D. W. BEADLE.

DAHLIAS.

The very choicest and newest sorts, imported from the best growers in England and Scotland. For sale by dozen or hundred. Price for newest sorts, $4.50 per dozen. Last year's sorts, $1.50 per dozen.

D. W. BEADLE,
v.2-4-1t St. Catharines Nurseries.

MILLER'S TICK DESTROYER.

MILLER'S TICK DESTROYER.

MILLER'S TICK DESTROYER.

FARMERS are recommended to give this valuable preparation a fair trial. It operates promptly and effectually in destroying Ticks and other vermin pests, as we as in eradicating all affections of the skin to which Sheep are subject. No Sheep-owner should be without it. As a certain cure it has hitherto proved infallible. Other Dips may kill all vermin seemingly alive, but on examination after a short time, the Fleeces will be found to be as full of Vermin as ever. The Tick Destroyer penetrates to the Vermin in all grades of development, extinguishing both hatched and unhatched life.

v2-2-tf. HUGH MILLER & CO., Proprietors, Toronto.

VINEGAR.

HOW MADE FROM CIDER, WINE, Molasses or Sorghum in 10 hours, without using drugs. For circulars, address F. I. SAGE, Vinegar Maker, Cromwell, Conn. v2-1-6t.

SEED POTATOES.

THE subscriber offers for sale the following justly celebrated varieties of potatoes:—Early Rose, $5 per barrel, 165 lbs.; Harrison, $3 per barrel, 165 lbs.; Early Goodrich, $2 per barrel, 165 lbs. Delivered to Great Western Railway, at Hamilton, and warranted PURE and TRUE to name. Orders accompanied with the cash BOOKED in rotation, and filled in the spring as soon as the weather will permit. Address, LEWIS SPRINGER, Hamilton, Ont. v2-2-3t

Important to Farmers.

CROPS ripened from ten to fifteen days earlier, and yield increased 100 per cent. by using

Lamb's Super-phosphate of Lime,	$40.00 per ton.
Fine Bone Dust, - - -	27.00 "
Half-inch Bone Dust. - -	22.00 "

Cash to accompany all orders.

PETER R. LAMB & CO.,
v2-3-3t *Toronto.*

TO STOCK BREEDERS
AND
AGRICULTURAL SOCIETIES.

I INTEND to keep a Register Book in which to enter all Thoroughbred Stock for sale, and to purchase or sell on commission, and as my personal attention will be given to selection, I trust to be favored with orders from those wishing Pure Stock. Address

J. MACKELCAN,
Toronto, Ont.

N.B.—I have some 20 YOUNG SHORT-HORN BULLS of recorded pedigree for sale.

TORONTO NURSERIES.

George Leslie & Sons, Proprietors.

WE ask the attention of purchasers to our full stock of

FRUIT TREES,

Of all kinds; SMALL FRUITS, bushes and plants; Ornamental, Deciduous and Evergreen Trees; Flowering Shrubs; Climbing, Moss and Perpetual Roses; 100 varieties best Dahlia Roots; Hedge Plants; Herbaceous Plants, &c., &c. The Stock is grown with a view to *suitability to the climate of Canada.*

Packing done in the best manner to insure safe carriage.

Orders by post will receive same attention as if purchasers were personally present.

Priced Descriptive Catalogue, new edition, sent to applicants enclosing a two cent stamp for postage.

Address all orders and letters of enquiry, post-paid, to GEO. LESLIE & SONS, Leslie P. O., Ont.

N. B.—A splendid stock of Bedding Plants very cheap. v2-3-3t

TO FRUIT GROWERS.

FOR SALE, a valuable Farm of 50 acres, with large plantations of fruit. Good house and out-buildings, two miles from St. Catharines, in the midst of the finest fruit growing region in Canada.

For further particulars address P. O. Box 63 St. Catharines, or Box 1372 Toronto P. O. &v2-3-2t

DEDFORD, MARCH, 1870.

BUSINESS AGENCY.
FARM, ESTATE, OR GARDEN.

MR. T. BOWICK has the pleasure of introducing good MEN to fulfil any duties in connection with the above. No one is recommended whose antecedents have not been thoroughly enquired into.

Mr. Bowick has sent good and tried persons for various duties, to Canada, United States, the West Indies, &c.

Reference to Mr. A. WILDMAN, Portage du Fort, and other gentlemen.

Home—Colonial—Foreign.

v.2-4-3t-eom

IMPROVE YOUR SEED.

Genuine Imported Hungarian Seed Grains.

THESE seeds are carefully selected and warranted to be as represented:

LIST OF PRICES.	per bush.	peck.	quart.
Wheat.....	$4.00	$2.00	$1.00
Rye.....	3.50	1.75	1.00
Oats.....	5.00	2.00	1.00

SAVE YOUR SEED FROM VERMIN AND BIRDS.

LASSING'S PATENT IMPROVED MODE OF PREPARING SEEDS. This patent powder protects all kinds of seeds from vermin and birds, and fertilizes after planting, and costs $2 per pound, which is sufficient for 2 bushels of Seed. State, County and Town rights for sale.

Sent by Express to all parts of the country on receipt of price. Send for circular containing valuable information to farmers.

AARON MASKER,
v2 3-3t Perth, Amboy, N. J.

THOMAS'
FIRST PRIZE BEE HIVES

ARE the best in the market. They have been awarded the first prize at every Provincial Fair for the last six years; also at the Michigan State Fair, and the Michigan Bee-keepers' Convention. Orders are received for these hives from England, the United States, and every part of the Dominion. A novel and improved entrance added this year. A perfect arrangement. Parties ordering these hives run no risk, as their reputation is well established. Beware of humbugs! Orders filled promptly. Send for circular.

J. H. THOMAS,
Brooklin, Ont.

N. B.—Parties residing in the County of Northumberland, will send their orders for hives to JOHN B. LAMB, Esq., Baltimore, Ont., as he has purchased the right for that County.—J. H. T. v.2-4-1t

MINISTER OF CANADA

V. [illegible] R.

EMIGRATION

TO THE

PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,

DAY LABOURERS,

and all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy an stock a Freehold [illegible] with the money needed to carry on a [illegible] farm in Britain. Good cleared land, with a dwelling and good barn and outhouses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. [illegible] farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants by the Government, is

A FREE GRANT OF LAND

(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain, on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are [illegible]liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of labourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz: Wm. Dixon, 11 Adam Street, Adelphi, London, W. C.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and T. Simays, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; Jas. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; E. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Brunswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. v3-3-12t.

Markets.

[illegible]

[illegible] 57c.
[illegible] to 58c.
[illegible] 56c.
[illegible] to $8.
[illegible] to $ 50.
Timothy—$4 [illegible] to $6.
Tares—$1.75 to $2.
Flax—$2.25 to $2.50.
Hungarian Grass—75c. to $1.

HAY AND STRAW.

Hay in moderate supply, and selling at from $7 to $15
Straw—Fair supply, at $4 to $6.

PROVISIONS.

Dressed Hogs—$8.50 to $8.75.
Butter—18c. to 25c.
Eggs—16c. to 18c.
Potatoes—40c. to 50c.
Geese—75c. to $1.
Turkeys—$1.75 to $2.
Chickens—per pair, 75c. to 90c.

CATTLE MARKET.

The supply of cattle has been deficient, in consequence partly of the state of the roads. The following are the prices, dressed weight.

Beeves—From $6 to $8.75.
Sheep—From $3.50 to $8.
Lambs—From $2 to $5.
Calves—From $3 to $12.
Hides—From 5c. to 8c.
Calfskins—From 10c. to 12c.
Sheepskins—Green, from $1.18 to $1.50. Dry, from 80c. to 90c.
Wool—From 25c. to 28c.

New York.—*Flour*—Heavy; receipts 6,000 bbls.; sales 9,000 bbls at $4.50 to $4.90 for Superfine State and Western; $4 65 to $5 80 for common to choice Extra State; $4.60 to $5.45 for common to choice Extra Western. *Rye Flour*, Quiet, at $4.55 to $4.60. *Wheat*, Dull and nominally unchanged; receipts 18,000 bush.; sales 7,000 bush. *Rye*, quiet. *Corn*, Scarce; receipts 400 bush.; sales 16,000 bush. at $1.07 for old mixed Western. *Barley*, Quiet; receipts 500 bushels; sales 6,000 bush. prime Canada Western at $1.05. *Oats*, firmer; receipts 3,000 bush.; sales 21,000 bush. at 58½c. to 58½c. for Western in store. *Pork*, steady at $26.25 for new mess. *Lard*, firmer, at 14½c. to 14¾c. for steam, and 15½c. to 16¾c. for kettle rendered. *Butter*, quiet, at 14c. to 20c. for Ohio, and 20c. to 28c. for State. *Cheese*, firmer, at 18c. to 16c. for common to prime.

PROVINCIAL MARKETS.

Montreal.—*Flour*—Extra, $4.60; Fancy $4.40 to $4.45; Superfine No 1 Canada Wheat, $4.25 to $4.40; No. 2 Western, $3.80 to $3.85. Bag flour, 100 lbs., $1.80 to $2.10. *Wheat*, Canada fall, 97½c. to 98c.; spring 97½ to $1. *Oats*, per 32 lbs, 28c. to 30c. *Barley*, per 48 lbs., 45c. to 50c. *Butter*, dairy, 17c. to 18c.; store-packed, 14c. to 16c. *Ashes*, pots, $5.85 to $5.70; pearls, $7. *Pork*, Mess, $24.50 to $25. *Peas*, 75c. to 77½c.

Hamilton, April 5.—Flour, per cwt., $2.37 to $2 62½; bran, 60c. to 75c.; clover seed, $7 to $7.25; eggs, 20c. to 22c.; butter, 23c. to 24c.; apples, per bag, 75c. to $1; potatoes, per bag, 55c. to 60c.; dressed hogs, $8 [illegible] 50.

Ottawa, April 5.—Flour, extra, $5.25; No. 1, $4 [illegible] to $5; bags, mill, per 100 [illegible] $2.62½; do. [illegible] oatmeal, per 200 lbs., $4.50; rye [illegible] flour, 100 lbs., $1.75; butter, 20c. to [illegible]

Contents of this Number.

[illegible]

FOU[illegible]
G[illegible]

ENTO[illegible]

P[illegible]

CO[illegible]

[illegible] of [illegible]cy [illegible]o Sow? "Name [illegible] Name?" W[illegible], &c., [illegible] Broom Corn; Clearing [illegible] Wild [illegible] [illegible], [illegible] Bo[illegible] ro, &c. [illegible] 14

EDITORIAL:
The Provincial Association; [illegible] Farm[illegible] the Protectionists [illegible]
The Duty on Live Stock; The [illegible]
Notes on the Weather [illegible]

HORTICULTURE:
Prize Essay—Award; Essay on the Raspberry, Blackberry, Strawberry, and Currant [illegible] 143
Improvement of Native Flowers and [illegible]
How to Prevent the Attacks of the Apple Borer [illegible] 147
How to Destroy [illegible] [illegible] the Ottawa Region; Protect [illegible] Trees [illegible] Mice; Packing Apples; New Rose, Madame La Baronne de Rothschild; Currants and Gooseberries [illegible] 148
Double Geraniums (with Illustration); Tomatoes; Trees for [illegible] [illegible] 149
Grape Queries; [illegible]g Apple Trees; Cause of [illegible] in [illegible] Crop [illegible] 150
Lombardy Poplars [illegible] and [illegible]ks; Evergreens for Farm [illegible]; Items [illegible] 151

APIARY:
Impregnation of Bees [illegible] 152

HOUSEHOLD:
Dry Cellars and Door-yards [illegible] 154
Earth Closets; A Working Dress for Farmers' Wives and Daughters; Protection of Wood from Fire [illegible] 155

POETRY:
Which? [illegible] 155

AGRICULTURAL INTELLIGENCE:
Double-furrow Plough Competition; Manufacture of Beet Sugar; Items [illegible]

MISCELLANEOUS:
Pot Toads [illegible]

THE CANADA FARMER is printed [illegible] 15th of every month, by the G[illegible] at their Printing House, 26 [illegible] Toronto, Ontario, where all [illegible] paper must be addressed.

Subscription Price $1 [illegible] payable in ad[illegible]

THE CANADA FARMER [illegible]um for agricultural ad[illegible] 20 cents per line [illegible] Two [illegible] in h[illegible] No [illegible] to be taken [illegible]

[illegible] A[illegible] are invited, [illegible]tor of the [illegible] Farmer," and [illegible] per are to be sent to

GEORGE BROWN,
[illegible]ng

P
AgrK
C

THE CANADA FARMER

VOL. II. No. 9. TORONTO, CANADA, SEPTEMBER 15, 1870. NEW SERIES.

The Field.

Hints on Autumn Work.

FALL PLOUGHING.—As much of this should be done as time and means will allow. Let the work begin as early as possible, in order that the teams may not be too much pushed to get it done before hard frosts render the work impossible. If every field intended for spring crops can be fall ploughed, so much the better. Land that is fall ploughed always is more certain to yield good crops, especially of barley and spring wheat, than if this work is neglected. Land intended for roots should never fail to be fall ploughed. There is more value and profit in the practice than most farmers ever dream of. On clay soils, especially, it is of the greatest value. If a barrel of salt per acre can be sown on such soils immediately after the fall ploughing is done, it will help greatly to dissolve and render available the mineral elements of plant food in them.

No harrowing should be allowed on fall ploughed lands. The rougher the state in which they can be left exposed to the action of frosts the better. It is generally noticeable that those farmers who give the most cultivation to their soils, provided they contain sufficient plant food, always obtain the best crops, and those who get their spring crops in earliest, and in the best manner, are least liable to suffer from such unfavourable seasons in early spring as that of 1870. Land that is fall ploughed, well laid up in ridges, and water-furrowed, is usually ready to be worked much earlier in spring than that not so treated.

SEEDING WINTER WHEAT.—Every effort should be made to get this operation performed as early as possible. A good tillering out in the fall is of great advantage to the wheat-grower, and with some varieties like the Soules and Blue-stem, it is especially so. The Diehl is allowed to be a variety that succeeds well only on good rich soils, and with good culture, though it may make a fair stand if sown somewhat late. The Lowe wheat promises well, though we are not yet well informed as to its particular merits. It is of fine quality where grown this year. The new varieties lately introduced by Mr. Arnold of Paris, and said to be obtained by cross-fertilization, we have not yet had an an opportunity of examining this season. Their value can only be determined by experience in successive years, and without this experience no one can rightly speak either in their favour or otherwise. Now that the once destructive wheat midge seems to have in a great measure ceased its ravages in the crops of winter wheat, our farmers can with confidence grow more of that old favourite, the Soules, than which probably there is no better and more suitable variety for this climate. It combines high quality with productiveness, under good culture, and always commands the top price in the market. Let particular pains be taken to have the seed wheat made clean and free foul from seeds.

SELECTING SEED CORN.—In those sections where corn can be profitably grown, it is well to be particular in selecting ears from the growing crop for next season's seed. The time to do it is just when the corn is ready to be cut. Choose the finest and largest ears from the strongest stalks, and particularly from stalks bearing two ears; the uppermost ear is usually the best. See that the corn completely covers the cob from bottom to top, and is solidly laid together. Open out the husks, but do not detach them, and hang up the corn by them in a dry place, there to remain all winter. By thus selecting the very best ears, the corn crop on a farm may be greatly improved from year to year in productiveness and value.

STACKING STRAW.—When the grain crops are being threshed out, let every care be taken to preserve the straw clean and sweet, by having it properly stacked, if there is not room enough to stow it away under cover. A vast amount of straw is uselessly wasted for want of a little attention to this matter, and frequently straw stacks are so badly put up, or get undermined by stock, that during the winter they get blown over, and smother some of the stock in the yard. We had a neighbour who lost several head of cattle in this way during a stormy winter's night.

TOP-DRESSING MEADOWS.—Those farmers who have on hand a supply of well rotted or composted manure should not fail to give a good top-dressing of it to such of their meadows as are most in need of a little stimulating in order to carry heavy crops of grass. The fall is the time to do this work, as then the manure will have the benefit of the fall rains to wash it down among the grass roots. It will also act as a slight mulch to protect the roots from being heaved out by frost. The dressing need not be heavy, say eight to ten waggon loads per acre, scattered evenly over the surface from the waggon box.

GATHERING APPLES.—In this matter there is often too much carelessness shown. Many find it less troublesome to sell the entire produce of their orchards, (reserving only such trees as may be required for a supply of fruit for home use), to some dealer, who having the facilities at command, and knowing the importance of care, will take pains to have them properly gathered, sorted and barrelled. In this case the farmer can generally obtain a fair price for good fruit, and runs no risk of loss from freezing up or bad handling. Sell as early as you can get a fair offer, and insist on a payment down sufficient to cover any risk of loss should the buyer neglect to gather them in time. The better the fruit, the better should be the price. Those who can spare the time and expense of barrels, and will take the trouble to gather and sort properly, and have a good place for storing away, will find their profit in keeping over their fruit, provided they have really valuable winter-keeping varieties.

POTATOES.—This crop should be taken up as soon as they are ripe, which is when the tops are dead. There is nothing gained by leaving them in the soil after they are ripe, and some risk run of freezing up, or rotting should the weather prove wet. On no account

SEP 7 1934 UNIVERSITY OF TORONTO

should they be stored away till they are dry, and yet they should not get exposed too much to the sun or their flavour will be injured.

GATHERING AND STORING ROOTS.—Do not neglect this operation too long, and get your crop caught in the hard jaws of Jack Frost while in the ground, as was the case last year with many. Sugar-beets must be taken up and stored before frost touches them; mangels and carrots are easily injured by frost, though they will bear a slight touch of it. Swedes can stand frost till it gets severe enough to harden the ground, but in any case they are safer if made sure of in good time, as soon as they have attained their growth, and they will not grow to any extent after the first hard frost comes. If they are taken up and piled in the field in small heaps, with a slight covering of straw or earth, to sweat a little before being stored away for the winter, they will keep all the better, and as soon as the ground freezes up advantage can be taken of fine days to cart them to the root-house or barn cellar.

FATTENING HOGS.—The earlier this is begun, after the food for them can be had, the better. If their food can be cooked, so much the better. Hogs thrive and fatten more quickly and at less cost on cooked than raw food. If that cannot be conveniently done, the next best thing is to have what grain or pulse is used soaked in water till soft and fermentation has begun. If, before putting up to fatten, every hog could be weighed, and its weight recorded, and an account kept of the weight and value of each kind of food supplied, and the state it was in when fed out, cooked or raw, and the hogs weighed alive before slaughtering, much could be done to ascertain which is the best and most profitable manner of fattening them. We hope some of our most enterprising readers will try some experiments of this kind with different foods and lots of hogs, and report results. It is well for the farmer to know by actual experience what he is about, instead of working in the dark, as too many do.

Let us have some careful and reliable facts about the difference between the live and dressed weight of hogs when slaughtered, noting the breed, so that something definite may be arrived at as to the value of each breed, and the amount of shrinkage that ought to be allowed in selling fat hogs alive. English experiments have shown that good, well fatted hogs will dress from 80 to 87½ per cent. of their live weight. It would be well to know which pays best, to sell the live hog or the dressed carcass.

CROPS IN NOVA SCOTIA.—The last number of the *Nova Scotian Journal of Agriculture* gives a favourable report of the condition of crops in that Province. Most of the cereals are said to be above an average. There is a great increase in the extent of wheat, oats, barley, roots, and especially potatoes, grown by the farmers this season. The pastures were in good condition and dairy produce was favourably reported.

Beet-root and Beet-root Sugar.

When we tell our agricultural readers that the value of the sugar and molasses which are imported into the Provinces of Ontario and Quebec yearly, (and the whole of which we could produce ourselves), amounts to nearly *Three millions of dollars*, while the wheat and flour which we export amount to only about double that value, the question seems too large to be dealt with by the agricultural community, and the farmer, with a sigh, thinks, "that is too big an affair for me; I must leave that to the Parliament of the Dominion." But when we tell the farmer there is a crop which he can raise on his own farm, which in value will amount (in addition to his other produce) to any sum from three hundred to one thousand dollars annually, he will begin to pay some attention to his advisers, and see if he cannot carry out what it is proposed he should do. This is the fact as regards beet-root sugar and the beet-root. It is a crop which every one can raise; and if once public attention can be directed to it, farmers will find it their interest to include this among their regular crops.

First, let us show what is done with beet-root and beet-root sugar in France, Germany, and Belgium; all of these countries no better adapted for growing the root than Canada is.

In the year 1866, the total sugar produced in the world from all sources was two millions three hundred and twenty thousand tons; and of this the sugar produced from the beet-root amounted to nearly one-fourth, and the whole of this beet sugar was grown in France, Belgium, Germany and the other European countries, none of which are more favourably situated for its production than Canada is. Of this enormous amount of sugar France alone produced two hundred and seventy-five thousand tons. In addition to this, an immense quantity of spirit was also distilled from the root direct, and from the molasses and other fermentable matters produced during the manufacture of the sugar, and most of which spirit is turned into French brandy. Now, if the French can grow sugar at this rate, the Canadians can also produce it when once the thing is understood, and its advantages appreciated.

Every farmer throughout Canada knows how to grow mangel-wurtzel, and consequently he knows how to grow beet, for the sugar-beet requires no other culture than the mangel; the man that can grow the one can grow the other. Undoubtedly, before we can have beet-root sugar, we must grow the sugar-beet, and it is fortunate that that root is not only as easily grown as the mangel, but is actually more profitable to grow as cattle food for the farmer. In mangels (or rather "mangolds," but the former term is now most generally used), the root consists of 91 per cent. water, and 9 of solid matter. In Silesian, or sugar beet, the root consists of 82 per cent. water and 18 of solid matter. Now, as the only profitable, nourishing part of the root is the solid matter, (for water can be supplied at a far cheaper rate than by growing it in the shape of roots), it is clear that it must be better to grow the sugar-beet than the mangel, for there is twice the solid matter in the beet; so that no one can have any excuse for growing the mangel in place of the sugar-beet. Again, to do well, the mangel must have a great deal of room; this allows for the growth of weeds, and requires at least one extra hoeing; whereas the sugar beet can be grown far closer together, both between and in the rows, and its leaves cover the ground and smother the weeds better than the mangel does. The sugar-beet grows more under the ground than the mangel, and when grown for sugar requires to be earthed up, and is doubtless somewhat harder to get out of the ground at harvest time; but being so covered, it is far less liable to injury from frost than the mangel, should accident prevent its being harvested, or should early frost set in.

Then, again, the mangel contains two per cent. of salt, while the sugar-beet contains only one per cent. of salt, so that the sugar-beet is the least exhausting crop of the two. There can, therefore, be no reason why the sugar-beet should not be grown on every farm, even if only used for cattle. It is more nourishing, less bulky, requires less house-room, is equally easily cultivated, and, in fact, more profitable than mangel; cows are fonder of it, it makes better milk and butter; the leaves are as good for food, and the crop is both a safer crop and a more profitable one. There is, therefore, no valid reason why the raw material for the sugar manufactories should not be produced here in any quantity.

We next come to the manufacture of the sugar, and here we find that popular prejudice has already implanted in the agricultural mind an idea that beet-root sugar can only be manufactured in large and expensive buildings, and on an enormous scale. This idea has got so firm a hold on the public mind, that it will take a good many small manufactories in actual operation to banish it; but that it will be banished is as certain as that sugar-beet can be grown as easily and with greater profit than mangel-wurtzel.

The manufacture of beet-root sugar was in the first place a state necessity. The great Napoleon's policy was that France should be self-sustaining, and should be independent of British and other Colonial produce; this could not be unless sugar could be produced as a French manufacture. Napoleon called in the aid of the great chemists of the day. They pointed out starch sugar and the sugar from beets as the only substitute. The starch sugar as an edible was soon abandoned, while that from beets was as quickly brought to a moderate perfection; the necessity of the state required an immense supply, and to

meet this, enormous manufactories were erected. These were fitted up, not by practical, but by scientific men; cost of production was in a measure lost sight of in the necessity for quantity, and the consequence was unnecessarily great expense in machinery and buildings, which, when erected, could not be altered or amended to meet the requirements of practice and experience and the progress of invention.

It is an indubitable fact that no manufacture ever reaches perfection so quickly as it does when it is originated by the people. Science comes in much better to mend practical errors than to originate processes. The object of science is to produce *in perfection*, that of popular effort is to produce with *profit*. Where a manufacture is in the hands of the people the utmost ingenuity of thousands is exerted, whereas, when science originates, it feels bound by its own rules, and seldom branches out. Science ignores accidents; everything must be produced and and carried as "secundem artem." Popular effort tries everything; and amongst the millions of experiments which popular effort makes, there will be many important successes which would never be attained by more regular means; accident has originated many of the most important improvements in the world. It is true that science can always step in and ascertain the reason of the success, and in doing so will almost always improve upon the original; but the purely scientific man, for his own credit's sake, will seldom go out of the beaten track, and incur loss or be supposed to commit errors, where there is but little or no probability of success. So it was with the cotton manufacture; when first started it was so profitable and promised such mines of wealth and easy work, that it called forth the exertions of the entire population; members of every imaginable trade left their ordinary avocations, and rushed to the spinning and weaving of cotton; the shoemaker, knowing the properties of leather, when he came to be a cotton spinner and weaver, introduced his original material into all such parts of his new machinery as admitted of it; the tinsmith and sheet-iron worker could, and did, prepare tools and machinery of equal efficiency, and at a quarter the cost of that made from more expensive materials; and so on with fifty trades, each one adapted such material and skill as he had originally used for a different purpose to the manufacture of cotton. Millions of mistakes were made, but hundreds of improvements were made also; the mistakes sunk with their projectors, the improvements, when aggregated, have made the cotton interest of England the greatest in the world. As it was said above, the opposite to this was the case with the beet-root sugar manufacture; it was required in full growth, and not having passed through the necessary stages of infancy, youth, adolescence, and maturity, came forth an imperfect, instead of a perfect, process.

Hence some of the most important elements of success are only just now being adopted. For instance, refiners of sugar had only been used to deal with sugar in its dry and crystallized state as brought from tropical climes, where skilled labour could not be had to refine it; hence, in the first manufacture of beet-root sugar, the coarse sugar was made from the juice of the root, and then subjected to the expensive process of refining to get rid of the impurities, many of which had occurred in bringing it to its crude state of brown sugar. Now, the case is altered; the refiner takes the juice when brought to a syrupy consistency, and before it is burned by evaporative process, (and it is always more or less so burned or coloured); the refiner now takes it in the state of syrup, whenever he can get it in that shape, and at once reduces it into refined or loaf sugar. Thus enormous savings are effected, and a more perfect production attained. The first beet-root sugar manufactory that has been erected in England is for syrup only; it belongs to a refiner, and as soon as the juice is sufficiently reduced he takes it off to his London premises and refines it into white sugar at once.

Another simple discovery has just been made. When, owing to certain accidents of manure or cultivation, the beet-roots have imbibed from the earth a more than due proportion of salt, they produce uncrystallizable sugar, to the great loss of both the manufacturer and the farmer. The extraction of this salt from the sugar was for a long time an impossibility, and such sugar as contained it and would not crystallize, was abandoned to the distiller or molasses cistern. Now, the following simple process is found to free the syrup from salt, and to render the sugar all crystallizable: Long troughs are provided with partitions at small spaces, which partitions are made of skin, bladder, parchment, or parchment paper; the compartments are filled alternately with syrup and with water. Thus, partition No. 1 will be filled with molasses or syrup; partition No. 2 with water, No. 3 with syrup, No. 4 with water, and so on. The article now used as being equally efficacious, and the cheapest, is paper, which, by the action of sulphuric acid, has been made into artificial parchment, and is called parchment paper. Improbable and impossible as it seems, the salt leaves the molasses or syrup and goes through the dividing partitions into the water, while the pure sugary syrup is kept back. When the operation is completed, which is in a very short time, the contents of the compartments are withdrawn, the sugar at once crystallized, and the salt liquid either reduced to its elements, or otherwise employed for different purposes.

Now, had the manufacture of beet-root sugar progressed naturally, from small things to great, these facts, and a hundred others, would have become known to the operators. Science, although it pointed out the evil, failed in the first place to produce the remedy, although when produced, either by experiment or accident, science has made the most of it, and added further improvements and information.

It will thus be seen that at the present time the manufacture of beet-root sugar is beginning to be so well understood, that we can afford to drop the heavy and cumbrous machinery adapted to it in large manufactories, and by simplifying the process adapt it to the means and skill of the producers of the roots.

NO. II.

It is only necessary to arouse the attention of the Canadian farmer in order to effect the manufacture of beet-root sugar as a home article, made as maple sugar is made, and by processes requiring far less skill than the manufacture of good butter and cheese. The farmer's common-sense reasoning is this: An acre of sugar beets costs no more to raise than an acre of mangels. When reduced into sugar by the help of the labour of his own family, and the wood growing on his own farm, he gets nearly two thousand pounds weight of sugar, while the refuse and other matters will fully pay for the expense of conversion.

Farmers will naturally say, "Yes, that may be all true, but I never saw beet-root sugar in my life, and I do not know that there is such a thing."

We reply:—"You never use refined sugar in your tea and coffee, nor use molasses or treacle that have been purchased at the stores, that one-third at least of each article is not made from beet-root sugar, grown on the continent of Europe, and brought into Canada under a heavy duty. You do not know this, but it is a fact.

Now let us look at the thing from a common-sense point of view, and there are thousands of readers who are quite as capable as the writer, or any other man, of analyzing and bringing down to everyday practice the elaborate system pursued in the large manufactories.

Sugar beets require to be ground or grated as finely as possible, but to that process we are all well accustomed in our cider mills. The juice then must be separated from the pulp—also in a similar way to cider-making. The more clear and perfectly strained the juice is, the more easy will be the subsequent process. If it is thought well, the sweet that remains in the ground pulp may be leached out with water, but whether it is worth doing so is a question for your own judgment. If you do not get the remainder of the sweet, the cattle do when consuming the pulp, so that it is possibly not worth the trouble of getting out more than you can squeeze out in your cider press. The juice will, of course, be strained into the boiler, and you then have what is equivalent to so much maple sap, only far sweeter and stronger, but there are impurities in it, and

these impurities must be got rid of. The first thing to do is to raise the heat of the liquor to 178 degrees Fahrenheit, then add quick lime which has been liquefied with water and strained, in the proportion of one and a half ounces of dry lime to one hundred pounds of juice. This is well mixed by stirring, and when well united, the heat in the boiler is gradually raised. The action of the lime combined with the juice causes a portion of the impurities to coagulate, while other portions seem to be caught up by the action of the lime; the whole of the impurities rise as a scum to the top of the liquor, and must be carefully skimmed off, taking care not again to mix them with the juice. In large factories they draw the purified liquor off by a tap in the lower part of the boiler, but in a private and small way, skimming will answer just as well. The liquor is not brought exactly to a boil, but the heat is raised and continued until the scum is properly formed. A little experience shows how to do this.

The purified juice is now boiled until it is reduced to a syrup-like state. In the boiling there will be a precipitate of some of the dissolved lime, which is not allowed again to mix with the juice.

This syrup is then run through a charcoal filter, which further purifies it, and it must then be submitted to the system of the troughs already described, containing divisions of thin skin or parchment paper. The action of these troughs takes out all the salts which the juice contains, and leaves the syrup with nothing in it but pure crystallizable sugar and water. The syrup is then further evaporated, until it is brought down to a proper strength for graining, just as maple syrup is, and it then is set by until the sugar forms; and this sugar can be brought to a greater state of purity by running off the molasses, and either refining it in the ordinary way or by claying it, which process will be described in a future article, or it can be run into cakes like maple sugar. Now there is nothing in all this which cannot be done by any person of ordinary intelligence. Any one who can make maple sugar can make beet-root sugar, if they will, by following out the course here pointed out, and the hints now given.

In cases where the farmer is near a sugar refinery, or within reach of one, the concentrated syrup is at once a merchantable commodity. All the farmer has in that case to do is to reduce the syrup to so strong a state that it will not ferment, barrel it up, and take it to the nearest sugar refinery, and they will gladly give all it is worth. This saves all the difficult part of the process, and gives the farmer a much better chance than he would otherwise have. There are now sugar refineries in Montreal on an enormous scale; there is one now erecting in Toronto which will also be very large, and in the course of far less time than it will take to persuade farmers to cultivate the roots, and prepare the crude syrup, that article will bring a definite price according to its strength and purity, and be merchantable at every country store, just as potash now is.

The first successful beet root sugar manufactory which has been established in England is at Lavenham. It has been established by a sugar refiner, and, as before stated, he only reduces the juice of the root to a syrup, which is then taken off in barrels to the refinery in London, and made up at once into refined loaf sugar, without first undergoing the process of making it into ordinary brown sugar.

Manufacturers prefer this, as they have less impurities to deal with, and sugar which has been injured by burning always contains a large proportion of a sugar that is uncrystallizable.

VECTIS.

Draining at Low Levels.

To the Editor.

SIR,—I am thinking of draining my land, but am rather puzzled about my outfall. The land slopes down to lakes in all directions, the low land at foot of the hills lying so near the level of the lakes that tile drains put in three feet six inches (and I don't think putting them shallower is of much service) would simply form a duct for the lake water to come into the land, instead of letting the subsoil water off; besides, I have always understood that letting the air through the outfall does as much good as letting the water out. Is not this so?

The only remedy I see is to bring my covered drains down until they are above high water level, then continue to the outlet in open drains; but this cuts up the field very much and prevents the use of mowing machines. Believing in machine work, I was thinking of getting one of Carter's Ditching Machines. My soil is loam on surface, with stiff clay subsoil, and tolerably strong. How would the machine work in such land, and at what distance apart do you consider drains should be put in such land?

Another question—Can soot be used to advantage on grass land; if so, when, how, and in what quantity?

IMPROVER.

Nova Scotia.

REPLY.—The only way to get over the difficulty is to lay a large sized tile drain along the bottom of the slope, giving it an inclination towards a point to be a common point for another drain coming from the opposite direction, and making an open drain down to the lake. This will certainly interfere to some extent with mowing machines, but if the leading drains are pretty long, two, or at the most three, open drains will do all that is required. The mouths of these tile drains being above the level of the water will allow the air to circulate, which has been found from the experience of late years to be a great help to drainage operations.

Carter's Ditching Machine, supplemented with some hand work to finish out the ditch to the requisite depth, works satisfactorily, as far as we know, and has been used without difficulty through such a subsoil as our correspondent's, though there is occasionally some trouble if there are many stones. They can, of course, cut a good many more rods in a day than a man, and have been found by the experiments to work cheaply.

Nine or ten yards would be a good distance to place the drains apart; the depth should be 3 feet 6 inches; and where practicable, the drains should come to the surface. Let care be taken, in joining the side and main drains, to have the side drains curved for ten to twelve feet in the direction of the fall—ordinary tiles are all that are necessary at the junction, and a few stones placed over the joints will allow thorough communication.

Soot makes a very efficacious top-dressing, applied in the Spring to grass lands.

Lifting and Storing Potatoes.

The potato crop of this season will not be a large one, not perhaps from lack of yield per acre, but because the low prices realized in the past season for this esculent have prevented many from cultivating it as largely as usual. Should the Colorado beetle extend its destructive ravages eastward of the point it has reached this year, we may find the potato crop so precarious as not to be worth growing except at a very high price. Last year we gave a cut of the best of the potato-lifters yet invented; and we have, so far, seen nothing of more recent origin.

In whatever way, however, the potato crop is to be lifted, it is well not to take out too much at a time. The exposure of the potatoes to the rays of the sun for any length of time is apt to give them a twinge of bitterness in their flavour. Let them be exposed no longer than is sufficient to dry them, and then have them gathered together in heaps and lightly covered with straw till they are to be hauled to the cellar or root-house.

When potatoes are to be stored away by pitting on the field, the greatest care must be taken to make the pits only on such spots as can be depended upon to retain no moisture at the bottom. If the land is clayey or naturally retentive of moisture, it is best to make a slightly elevated bed for the pit to rest on. If the soil is sandy and perfectly dry, such as is found on little knolls or hillocks, a small pit may be dug from one to three feet deep, and the potatoes dumped in, and piled up till they give enough slant to make a roof that will shed rain.

In covering the pits, it will be found that the potatoes will keep much sweeter and nicer, and be less liable to suffer from sudden and severe changes of weather, if they are covered with clean straw before earthing them up. Our plan was to have the grain in some sheaves beaten out with the flail, and the straw kept for the purpose of laying over the potato pits before covering in with earth. By doing this the straw can be laid like the thatch on a house, and be of more value as a protection from rain and frost than if it had been taken from the straw-stack.

It is well to have the potatoes sorted before putting in, if there is time to do so. Let all the small ones be picked out and put away separately, or carried to the barn to be fed out to the milch cows or store hogs.

If the potatoes are stored away in a cellar or root-house they must go into it perfectly dry, and should be divided into lots of about one hundred bushels each, with board partitions between to prevent the whole mass from getting heated and rotting. If they cannot be dried in the field before storing away, they should be drawn to the barn and spread out to dry on the floor. If there is any rot in the crop, the very greatest care must be taken to reject every potato that shows the least suspicion of it. It is better to do this than to find out, a few weeks afterwards, that one speck of rot had developed into such proportions as to necessitate the throwing away of many bushels.

Rye for Early Pasturage.

The shortness and inferior quality of the hay crop of this season make it probable that, by the time spring comes, many farmers will find themselves with less of it than is desirable to carry through their stock in good condition till grass comes. The price also may rule so high as to be an inducement to sell hay, rather than consume it on the farm.

In order to provide for this contingency, it will be well for those who breed stock largely, especially sheep, to grow some crop that will give them an extra early bite in spring, should the winter fodder not hold out.

For this purpose, nothing better adapted to the climate, or more certain to succeed than winter rye, can be found. It will grow on almost any soil, with very little preparation, and if sown early enough, will acquire such a growth before hard frosts stop it, that when the snow melts in spring the sheep will find a very good bite, and it will start again so early that much feed can be had from a field of it before there is a bite of grass in any of the meadows. The seed required will cost but little, as from a bushel to a bushel and a half per acre will be sufficient seeding. Stubbles, and land intended for fallows or roots next year, may as well be sown with this crop, if it is thought probable that there will be a deficiency of forage before grass comes again. But it is a very undesirable crop if allowed to go further and grow up to maturity, and those who sow it for the purpose of obtaining late fall or early spring feed must not be tempted by the fine appearance of the growth to neglect ploughing it up as soon as the stock can go to other pasturage. It is also better to be careful with stock when they are turned on such very early spring feed, and allow them to get gradually accustomed to it, otherwise the sudden change from dry fodder to green food will prove prejudicial by rendering them liable to scouring, and giving them a distaste to what dry fodder can still be spared to them. They should get out on the rye only for a short time each day, and in no case be allowed to live on it exclusively.

Thin Seeding of Wheat.

I notice a good deal of controversy in the English papers on this head, and being somewhat practical in my notions, and at the same time observant from habit, I am led to believe that all their theories and doubts, so far as Canada is concerned, will be swept away by the oft-repeated observation made in the spring by almost every farmer, namely, "My wheat is pretty good so far, but too thin." Who ever heard of wheat being too thick on the ground in spring in Canada? Very few; and what every one says must generally have a great deal of truth in it, at all events so far as the practical results go here. Wheat *may* do well at home if dibbled in at a distance of 12 x 9 inches; but I am very sure if our farmers had their crops winter killed so as to leave only one plant at this distance, they would make the above observation, and it would almost always be exactly the fault such a thinned out crop would have. "It would be too thin."

It may be that the land here, combined with our short season, will not allow of the stooling out of wheat so thinly sown; but such is the fact, and all the statements of English agricultural experience will not convince our farmers that they would be more certain of a crop, with plants at 9 x 12 inches apart, than if twice as thick. Such statements as those we read of in English papers are calculated to mislead, and sometimes to discourage experiment, unless followed out with great caution, and due consideration as to circumstances attending them.

C.

Storing Roots for Winter Use.

The most advantageous method is undoubtedly a cellar under a side-hill barn, where the roots can be cut up and fed out to the stock at one operation, and without the necessity of exposing them to severe cold in conveying them from the place where they are stored to the place where they are to be fed out. Except in a side-hill barn where the roots can be on the same floor with the stock, it is seldom advisable to have a root cellar under a building. If a cellar is made to hold them under an ordinary barn, it is apt to be damp, and the roots to suffer for want of ventilation. A root house, either on the surface or but little below it, and adjoining the cattle stables, is preferable to a cellar underneath them. The outside walls above the ground may be banked up with earth, and the top portion covered with stable manure. The root house may be made of two inch plank, if more substantial materials are not convenient. Where timber is abundant, a cheap and substantial frost-proof root house can be made of logs, the roof being made of strong poles, covered with pine branches, and then with manure or earth. The manure can be removed in spring, and a fresh coating put on each year. Where a root cellar is used for storing, it is well not to fill it too full at once, but to let a part of the roots be pitted on the field, and afterwards drawn in on mild days in winter or early spring, when the roots in the cellar have been nearly fed out. If very large quantities are stored in the root cellar, there should be partitions made to divide them into quantities of 200 to 300 bushels, to prevent heating.

Salt as a Manure.

With the present abundance of salt in Canada, it is most desirable that its value applied as a dressing to the soil should be definitely ascertained, which can only be done by means of actual experiment. It is not yet known as it should be, that salt, although not possessing chemical constituents of value as plant food, yet acts as a powerful solvent of those elements contained in the soil that, when dissolved, go to make up the bulk of the food of plants growing upon it. This accounts for the fact that the richer the soil the more likely is a dressing of salt to prove valuable to it. The best time to apply the salt would probably be, in the case of winter wheat, to sow it broadcast on the soil just before sowing the wheat; on land intended for spring crops it might be sown on the surface late in the fall on newly ploughed land, or very early in spring as soon as the land is ploughed for a spring crop. It is quite probable that the barley crop would be benefitted by the application of salt, as well as wheat. For mangels, salt is said to have been used in Britain with marked advantage. The quantity that can be given with profit can only be ascertained by repeated trials; but one barrel per acre is little enough to begin with. An increase of even one or two bushels per acre would amply repay the small cost of the salt, and it is likely that a much greater increase would be given in many cases.

It is said that in combination with lime, by slaking the lime with water in which salt has been largely dissolved, a good material for composting with swamp muck, and quickly decomposing it, may be obtained. The slaking of the lime with salt water causes

a portion of the muriatic acid in the salt to unite with the lime, thereby rendering it more soluble, while the soda left is then free to combine with any acids in the muck, and form soluble salts, thus making the composted material more quickly available as plant food for the crops to which it is applied. It is worth experimenting whether salt, if applied to barn-yard manure by throwing a little over the compost heap or yard once in a while, would make it more valuable and quickly available by the union promoted between the different materials in the manure heap.

Norway Spruce as Hedge Shelter.

Some weeks since I had occasion to visit the nursery gardens at Leslieville, and whilst there carefully examined the various hedges that are planted out, as proof of the efficiency of the various sorts.

The Buckthorn certainly makes a very handsome hedge, but it affords no shelter when most required in winter, and as a farm fence many years must elapse before it will afford protection against cattle; and one great fault all the Thorn tribe have, is that it is almost impossible to mend a gap in an old hedge, caused by accident or otherwise, by planting young quicks, as it is a well known fact that the old plants rob the young ones to such an extent as to seriously dwarf their growth, if not to kill them outright.

Hemlock hedges have a more serious objection; the plants are very difficult to be made to grow, and although the hedge when grown affords good shelter, yet it becomes hollow and bare at bottom in a few years.

Norway Spruce, on the contrary, grows freely, and, from some cause, old plants do not prevent young ones from growing when planted in their vicinity. The expense, however, of Spruce plants at present prices will, it is feared, prevent its general introduction as farm shelter; but for lawn and garden ornamental hedges, fences and shelter, it is altogether unsurpassed. The growth is rapid. If the peculiar growth of the Norway Silver or Black Spruce is noticed, it will be observed that when any one of the end shoots is cut off, two or three will sprout at the next joint to supply the want. Another great excellence is that the growth is only in the spring, so that you need not be pruning several times during the year, as is the case with some ornamental garden hedges, if you would have them look well.

If, when first establishing a homestead, we were to appropriate a few rods of ground for the purpose of growing these plants, together with Horse and Buckeye Chestnuts, Mountain Ash, Locust, and several more of the ornamental trees, the cost would be quite nominal, and in a few years we should have an abundance of the various kinds, to embellish our homes and defend them from the cold winds and frosts, as nothing will defend a garden border from early frost so much as a thick evergreen hedge close to it. The above seeds can readily be procured; but do not on any account trust to the Canadian variety of Spruce; they are worthless for the purpose of hedges, as they will not bear cutting, and get hollow and bare at bottom directly. No other kind will answer so well as the Norway variety.

C.

Selection of Seed.

One of the most important items of farm economy that calls just now for special consideration is the proper selection of seed wheat. Repeatedly during the last two years has the attention of farmers been called to this subject. The results of carefully selected seed have been very forcibly exemplified by the prodigious yields of certain new varieties of grain and roots, such as the Norway oats and Early Rose potatoes. The productiveness of these novelties has not been due to any particular quality of manure used, or any remarkably extra good land, but chiefly to renewed seed. I have myself seen Early Rose potatoes yielding fifteen to twenty good marketable potatoes from one single eye or set, and these potatoes were as large as eggs on the 8th day of June last, and were grown as ordinary potatoes in the open ground, and without extra culture in any way. There are many similar examples that might be cited, but these familiar cases will serve the present purpose.

The principle involved is further illustrated in the case of wild animals. These do not deteriorate or degenerate, notwithstanding the constant intercourse between relations, in fact re-sowing again and again the same seed; and why is this? Simply because the largest, strongest and most vigorous males are always masters, and the poor weakly members are driven away and not allowed to procreate the species. Were it not for this, wild animals would have become dwarfs long since. The law of nature which thus secures the perpetuation of the species in undiminished vigour and perfection is exemplified among the comparatively solitary beasts of prey, such as the lion, as well as among the gregarious tribes which multiply more rapidly, such as the wild deer of our own forests. These all have retained from time immemorial their original proportions and physical development. The only cause that has been found practically to influence size and power is scarcity of food, and occasionally this has exerted a deteriorating effect where civilization has encroached on the natural resources of the wild animal. Now, we may follow out the same train of thought, and apply it to the vegetable kingdom as well as to the animal. But in the case of vegetables there is no passion that compels the weaker to retire. The poor dwindled seed, therefore, so long as it retains its vegetative power, will produce its kind in abundance, but in constantly deteriorating quality. Hence it follows that, in our artificial husbandry, we should select all our best and finest productions for propagation, and reject all inferior specimens as utterly unfit for the purpose of reproduction.

The idea of changing seed is no doubt excellent, and the practice has often been found beneficial; but it may be questioned whether in these cases the benefit is not due to the superior quality of the new seed rather than the mere change. The selection has probably been carefully made from a farm of noted excellence, and more than usual careful culture has been adopted, so that a product of improved quality is secured. The benefit is, however, soon lost by the farmer who trusts alone to such a way of keeping up his supply. No doubt "like produces like," and a fine crop is often due to this course, though generally somewhat inferior to the sample sown; the succeeding crop will probably be reduced in quality and quantity, and ultimately all the original excellence will have disappeared. We need, then, some system, in order to keep up the good qualities of any sample. Admitting the benefit of a change of seed, admitting also that new varieties of seed from hybridization are often valuable, still the most important means at our command is the selecting the finest and best of the crop for the coming season.

Last harvest I carefully examined a crop of wheat, and with a pair of scissors cut off the upper portion of a great many ears. These were threshed out and put by. The middle parts were next cut off, and also threshed and preserved separately. The lower ends were then threshed out, and the samples compared. There was a manifest difference. The product of the top was equally plump, but much smaller, and moreover only contained two corns in a chest. The middle were full and plump, and contained three corns in a chest. The lower was a medium between the middle and top, better in sample than the top, but not as good as the middle; and also many of them had only two corns in a chest. Now, on counting the number of chests used and the number of corns produced, I found that the yield of the top was not only smaller in the size of the grain, but more than one-third less in number, and a proportionate decrease followed the lower parts of the ears compared with the middle.

Now, we cannot suppose that wheat grown during a succession of seasons from ears, or parts of ears, that contained two corns in a chest, would have the same tendency to produce three corns in a chest as that which had previously always grown the largest number. And it hence follows, that it is of great importance to grow that portion of the wheat ear for seed that had previously produced the best quality of grain and the greatest number of kernels. The true way to accomplish these very desirable ends is to follow the course I adopted; but this would involve so much labour that no field of wheat could well be grown from seed so obtained; but the results of a small lot so saved could be sown, and seed thus collected for another year.

Mr. Hallett, of the Pedigree wheat notoriety, has shown that the above ideas are quit correct, and has also for many years so increased the yield of wheat by these means that he once grew 108 bushels to the acre, as the greatest yield he ever obtained; 50 to 60 bushels were ordinarily grown, and 65 lbs. a bushel often attained. He went further; he selected all the larger ears, and from these he selected the largest kernels, and also in preference those specimens in which there were four grains in a chest, and by following out this system he obtained this enormous yield. But mark, not from exchange of seed simply, or any remarkably fertile land, but by adopting with plants the principle of reproduction among wild animals already alluded to.

All the new sorts of potatoes exemplify the same principle. Garnet Chilis now produce heavy crops, and the Early Rose still larger, and this increased yield is not due to the increased fertility of the land, but to the improved quality of the seed. Of course, food in abundance must be supplied to all plants, but manure and good culture are not the only means by which we can hope to increase our crops.

The course followed by one man in the township of Manvers has for many years been to obtain a sieve of just such a size as will allow all the smaller portions of his wheat crop to pass through, and all the larger and finer grains to be retained. He sifts his whole crop after this way, and always sells the siftings for flour, and retains the remainder, about eight-tenths, for seed, and his neighbours come for miles round to obtain it. He charges fifty cents a bushel more than the highest market price for his best seed, and never fails to sell all he has to spare.

Another way that was in use by one man for some years was called "thrown wheat;" many thought it named "throne wheat," but the name entirely originated with throwing the wheat on a long floor as hard as possible, with a small wooden shovel adapted to the purpose, and by which the large heavy grains of wheat went much further through the air than the light smaller ones. The man who first used this plan kept it secret, and made some money by thus selling his seed wheat, and attained a considerable notoriety, as the wheat was by many thought to be a new variety and very fine; but the plan soon was known, though its very simplicity caused it to be abandoned, or perhaps it is seldom practised because few have floors long enough, or indeed skill sufficient to throw the wheat to advantage.

To test the foregoing principles and practice, I would advise any one to procure a sieve, and by selecting their wheat as before described, out of 100 or 200 sifted bushels, they will obtain 50 bushels of very fine wheat, the growth of the middle portions of the ear, combining many of the requisites of a first-class seed. The cost is little, and trouble nothing; about a day's work will suffice to complete the sifting process; and when buying the wire gauze for the sieve, take a gallon of your wheat with you, and test the exact size required.

C.

Ploughing Stubble after Harvest.

We are inclined to think that there is not enough care bestowed on land that has just gone through the process of producing a crop of grain. It seems to be thought that once the harvesting is done, the husbandman's labours are ended on that particular piece till such time as he requires to use it again for the production of another crop, be that crop what it may. Farmers are too much inclined to look for present profit rather than endeavour to secure continuous prosperity.

The simplest operations of tillage are of more value and importance to the soil than most farmers are aware of. The more the soil is turned and exposed to the sun and air and the more its particles can be brought into contact with atmospheric influences, the more soluble and available becomes the plant food stored up in it.

Prof. Stockbridge, in a recent essay, says: "Silently and unseen, but surely and incessantly, are these agents accomplishing their appointed work. The frost of winter, with its crushing, disintegrating power, is reducing the rock particles to powder to prepare them for the more efficient action of its coworking agents. The heat of summer is decomposing the organic ingredients, and giving to the soil gases and acids for their secondary work. The air is permeating it with its oxygen to form acids and corrode and take to pieces its metallic elements; with its carbonic acid and ammonia to unite with other acids or alkalies in the soil, forming new and needed compounds. The moisture of the atmosphere is condensed to rain, and, descending to the earth, carries into the soil its gases for plant food, and dissolves the material prepared by the other agencies."

But this is not the only benefit to be derived from keeping the soil as much under tillage as possible, when it is not either occupied by crops, or locked up in the grim embrace of the frosts of winter. The soil is more or less full of the seeds of foul weeds, and the pupæ of grain-destroying insects, which can be in a measure diminished, if not destroyed, by tillage operations. We know it is usual to consider that the stubble fields are worth something as pasturage for stock, and to turn the poor beasts into them for a while till the pastures proper become recuperated. They doubtless manage to pick up a living, and for the first week or two may thrive passably well with the help of the fallen grain; but in many cases the animals come off them in a worse condition than if they had been kept on the pastures. If, instead of this being done, the stubbles, where not seeded down, were ploughed up, scarified with a gang plough, or by a cultivator, within two weeks after harvest, the work being so shallowly done as not to bury the weed seeds on the surface too deep, there would be heat enough to start germination of those seeds, yet not time enough for the plants to grow up to a second seeding. Even harrowing the stubble, provided a very heavy sharp-toothed harrow was used, would, in those cases where the soil is not too heavy or compact, accomplish this end. When the land is much infested with the midge, ploughing to a moderate depth, say five or six inches, and turning the furrows wide and flat, would throw most of the midge pupæ so near the surface that the birds would destroy many of them, and the frost, if severe in the fall, would put the remainder out of the way of doing much injury the coming season.

A Backwoods Farm—An Old Settler's Experience.

It may not be uninteresting to many of our immigrant readers to have portrayed before them the history of a new farm in the backwoods, comprising about five hundred acres. The following narrative, having been compiled from actual experience, is entirely reliable, and cannot fail to prove valuable to new settlers, who, whilst reading the record of some failures, can at the same time revolve in their own minds the course they would have pursued under the same circumstances. By this means many mistakes may be avoided, that the writer of these reminiscences occasionally fell into. Of course, he had many successes and triumphs, and also some reverses; and, when a truthful account is given, the reader can have the benefit of all the experience thereby gained.

As the history extends over nearly twelve years, it must necessarily require more than one or two articles; but we think we serve the interest of the farming community in general, and that of the immigrant in particular, by allowing space for the interesting record.

ED.

LOCATING AND CHOICE OF LAND.

Our first task was carefully to examine the tract of five hundred acres of land we contemplated purchasing. We hired a surveyor, and under his direction and guidance we walked over the land backwards and forwards almost all one day; and since that time, and now that we have the farm almost all cleared up, and have learned to know every hole and corner, tree and shrub on it, we can fully appreciate how little we were clearly enlightened by walking over the land. To test the quality, we were told to examine "turn-ups," that is, upturned trees, and found about eight or ten inches of dark soil, and below that a subsoil of clay,

mixed with small limestone gravel, a large portion of which adhered to the superstratum. The gravel appeared to be mixed with the clay in the subsoil in about the same proportion that the raisins in a poor man's pudding bear to the pudding itself.

We saw that the land generally, although it appeared rich, and was all covered with the best hardwood, was what is called "cradle-knolly," and at that time we did not understand the quality so developed. We now know that "cradle knolls" are a sure sign of a poor, wet subsoil, no matter how rich the surface may appear to be, as otherwise the trees would have gone deeply into it, and by consequence would not have been so readily uprooted in previous years. For the fact is that the roots of trees do not like to penetrate into such a sour, hard, uncongenial portion of the land, and consequently, by spreading out on the surface, and not penetrating deeply, they were continually being uprooted in all directions. Year after year, as the timber had attained its growth, and each uprooted tree had drawn with its roots the surface soil, and with it some subsoil adhering—the roots themselves, meanwhile, decaying in their turn—the earth so gathered had accumulated into heaps or knolls, to be again occupied with a new growth of timber. And so these cradle knolls are formed, and the subsoil, thus drawn into heaps, has left deep depressions or hollows in the intervals. These intervals were very rich, as the wind had many a time drifted them full of leaves, and of course had denuded the higher spots in the same ratio, thus leaving the elevated spots poor, and the lower ones too rich and wet.

When, therefore, in subsequent years, we succeeded in ploughing away the high spots, and thus levelling the land, we actually in the process covered up the best soil with the poor and exhausted knolls; and thus we found to our cost that "cradle-knolly" land must necessarily be comparatiually poor for some years, and until the gradual mixture of hillock and dale was ultimately equalized by cultivation.

Here is an explanation to emigrants coming to Canada well worth their careful attention, as, independently of the causes above stated, the "cradle-knolly" land should be taken up with caution. The extreme roughness of its surface renders it three times as difficult to plough before the roots are decayed; and during wet seasons the water is sure to lie in the hollows, to the injury of the crop. And again, the roots of trees in the kind of land above described, which do not go deeply into the soil, but rather creep about near the surface, offer a terrible obstruction to ploughing during the first six years after clearing. We have often, since those days, seen land where the tree roots penetrated the subsoil so nearly to the stump that the plough could be conveniently used years before it could in our case.

Surface Application of Manure.

It is now becoming generally understood that the old plan of ploughing barnyard manure into the soil is not the most advantageous plan that can be adopted to secure its being eliminated as plant food by the crops to be grown on the land. As years pass on, and more experimental observation is taking the place of old faith in the doings of our forefathers, among the agriculturists, it is being demonstrated by practical experience that much of the success in applying manures to the soil will be dependent upon the art used in adapting the method of application to the circumstances of the case. The natural tendency of all manures applied to the soil is to work downwards; that is, the elements of plant food contained in them, as soon as set free by the action of water, which in all cases is the greatest resolvent, are carried beyond the reach of the roots of plants, unless they can be placed in a position to be made immediately available as plant food, by being taken up by the roots of the crop as fast as they become resolved into their chemical constituents. This course of action is constantly going on from the time the manure is first deposited in the yard, until it is finally taken up as food by the plants in the soil to which it is applied. This action may be accelerated or retarded, according to the method adopted in managing the material of which the manure is composed.

Now, if we apply the manure in a long undecomposed state to a stiff clay soil, and turn it under deeply with the plough, it will remain inert in the ground for a length of time, perhaps for years, according as the soil is worked or not afterwards, and its good effects will be divided over several successive crops, giving but a small proportion to each, as being deeply buried in a compact soil, it will not quickly be changed into plant food. Suppose, instead of being so buried, it was spread over the land late in the fall, and allowed to remain all winter, to be turned under with the plough early in the spring. The fall rains and winter's snows would wash every particle of available plant-food then in it into the surface soil, for some distance down, where it would be retained in solution, and go to help forward the crop to be grown in the succeeding summer, during its early stages. The inert material then left to be turned under by the plough in spring would be gradually decomposed under the surface, and become available either for the crop in its later stages of growth, as its roots penetrated into the soil, or for the succeeding crop, when the reversal of the soil would throw the partly or wholly decomposed materials again towards the surface.

Now, if we have the ground prepared and ready for a crop, and have on hand some barn-yard manure already in a state in which a large proportion can be readily dissolved by rain and washed into the soil, it would be of vastly more benefit to that crop if the manure were spread over the surface, and harrowed in with the seed, than if it were buried out of sight with the plough. What would remain on the surface of undecomposed elements would be of no more value were they buried out of reach of the roots of the crop to be grown, but on being turned under at the next ploughing, and again turned back before the next crop is sown, they would become converted into available plant food for that crop. In applying barn-yard manure to the turnip crop, it is found the best plan to run furrows with the plough, fill them with green manure, and cover that with a light coat of earth, on which the turnip seed is sown. The roots of the turnips penetrate to the manure, and extract all the then available plant food in it, leaving the remainder to be decomposed by time and fermentation, to be made available for the next crop, when most of the manure will be turned up towards the surface, in a condition ready to have the fertilizers contained in it washed by rain back into the soil, among the roots of the grain crop that usually (under a proper system of rotation) succeeds a root-crop.

It is an old fallacy that by applying manure on the soil, much of its fertility is wasted by evaporation. This is not, and cannot be the case, unless to a very limited extent with a single constituent, namely, ammonia, and it may be questioned if anything more than the water contained in the manure can be evaporated, leaving the salts held in solution by it behind, to enrich the soil, when again dissolved.

The only advantage gained by turning under manure with the plough is the acceleration of the decomposition of the straw and other fibrous material contained in it, which in course of time become gradually resolved into plant food by the chemical action of the mineral salts contained in the soil.

Superphosphate of Lime.

W. G. S., of Toronto, wishes to know how to make superphosphate of lime. We presume he refers to the home-made article, and not to the commercial fertilizer. A ready way of manufacturing this important manure is to break up the bones as fine as possible, and then place them in a wooden box or barrel. Water, equal to about one-sixth the weight of the bones, may next be added, well stirred in, and left for a day or two, to heat and ferment. Boiling water would be best for this purpose. Then add sulphuric acid, mixing well with a wooden spade (no metal should come in contact with the mixture) in the proportion of about forty pounds of acid to one hundred pounds of bones. Let it stand for about two weeks, stirring daily. If the mass is not then dry, add some absorbent, such as sawdust, dry

earth or peat; but on no account use for this purpose lime or ashes.

Thus made, the compound will be a valuable manure, which may be kept for a long time without losing its strength; but it should be protected from exposure to wet.

A good manure may be made from bones without forming a superphosphate, by dissolving the animal matter of the bone by means of alkaline leys, and thus freeing the bone earth, which is then in excessively fine particles fit to be dissolved in the waters in the soil. Many recipes have been given for this. Dr. Nichols, in his Boston *Journal of Chemistry*, February, 1869, gives the following, which he recommends: Take a barrel of fine ground bone and a barrel of good wood ashes, mix well together and add three pailsful of water; mix the whole intimately, stirring daily; the mass will be fit for use in a week.

Hop Picking and Curing.

To the Editor.

SIR,—As it may interest some of your numerous readers, I take the liberty to give you a rough sketch of the process, as seen by myself, and learnt from the managers of the large yards in Waterloo, which I have visited.

The picking is done by women and children, who are waited on by men called tenders, who cut the vines, pull the poles, and bring them to the boxes, where they are soon stripped by the pickers, after which the poles are stacked up for the next year's use. The pickers are paid by the box, and can earn 50 cents to 75 cents a day, according to the nimbleness of their fingers.

The hops are emptied from the boxes into large sacks, and carried to the dry-house, where they are immediately placed on the slat floors of the kiln, which are heated by large stoves, with long strong pipes running across the room under the slat floors. The hops are dry in about sixteen or twenty hours, and are then shoved off into the store-rooms, where they lie until cool. When they are ready for the press, they are pressed into tidy bales by strong lever presses. The sacking is first laid on the bottom of the press, then strong, wide sheets of paper; the press is then set up and trodden full, when another piece of sacking and paper are placed on the top, and the follower put on and pressed down The sacking is sown together after the sides of the press are taken down, the follower and standards holding it secure and giving room for sowing.

This putting paper inside of the sacking is a new improvement, claimed to answer the purpose of preventing evaporation and the injurious effects of light. As paper is a non-conductor, and air-tight, it is thought to answer admirably.

The crop in Western Ontario is estimated at about three-quarters that of last year, and of about the same quality.

C. G. B.

Waterloo, Aug. 30, 1870.

Saving Corn Fodder.

The deficiency in the hay crop this year will be considerable in some places, and it would be well for farmers who have crops of corn to take a little extra pains in saving the stalks in such a way that they will keep over winter, and yet retain sufficient of the saccharine juices to be palatable as food for stock.

To do this the corn should be cut as soon as the ears are well filled and glazed, and, if possible, before frosts come. Then set up in shooks for a week or two, and husk out the corn. That done, the stalks should at once go under cover, and be stowed away standing up, if possible, or in such a manner as will prevent them from getting too compactly together, and becoming mouldy from heating. Corn stalks cut up and steamed, or mixed with cut hay and a little meal, and wetted slightly at the time of feeding out, are much preferable as food for cattle to straw or poor hay. Corn sown in drills for fodder, and cut and cured before frost comes, is most excellent and nutritious food for milch cows.

Remedy for the Prevention of the Turnip Fly.

The following top-dressing for preventing the ravages of the turnip fly was stated by the late Mr. Fisher Hobbs to have been used by his steward for many years with perfect success.

One bushel of white gas ashes, fresh from the gas-house, one bushel of fresh lime from the kiln, six pounds of sulphur, and ten pounds of soot, well mixed together, and got to as fine a powder as possible, so that it may adhere to the young plant.

The above quantity is sufficient for two acres when drilled at twenty-seven inches. It should be applied very early in the morning, *when the dew is on the leaf*, a broadcast sowing-machine being the most expeditious mode of distributing it, or it may be sprinkled with the hand carefully over the rows. If the fly continues troublesome, the application should be repeated; but Mr. Fisher Hobbs stated it had never failed where applied at night to Swedes, turnips or rape.—*Gardener's Magazine.*

TREES CONDUCIVE TO HEALTH.—By absorbing or emitting electricity, according as it is deficient or in excess, they (the trees) maintain a natural electrical state of the atmosphere around them, and we all know how intimately atmospheric electricity is connected with disease. Without trees there is always a deficiency of electricity, consequently a deficiency of ozone, and the air is not in its naturally healthy state. They act in like manner as regards heat, cooling the atmosphere at eventide during the hot summer months by rapid radiation into space, while streets and squares without trees remain hot and close.—*Scientific Review.*

Cheap Farm Gate.

A correspondent in the *Journal of Agriculture* gives the following directions for making a good gate at small cost and trouble:—

Take six pieces of stuff ten feet long, four inches wide, and one inch thick; lay these down on a level piece on the ground, leaving your first bottom space two and three quarter inches wide, the next three inches, the next three and a half inches, the next five and a half inches, and the next, or top space, nine and a half inches wide; then take the same kind of material and nail across the ends with annealed nails; then nail on a cross brace from the upper to the lower corner, also with annealed nails, so that it will fit neatly inside of your end pieces. Now turn your gate over, and nail similar upright pieces across the ends, even with the ones on the opposite side, and one upright piece midway between the ends. This latter is far preferable to putting on a diagonal brace on that side. In such a gate there is no morticing, and, for the weight of it, it is far stronger than any morticed gate that can be made.

Annealed nails, to my mind, are better than wrought nails. If you use inch stuff, common eightpenny nails are heavy enough, as they are two and a half inches long, and half an inch is enough to clench. The best way to anneal them is to put them in the stove while the folks are getting supper, cover them up in the hot ashes for the night and take them out next morning. This slow cooling serves to toughen them. To get the proper anneal, you should heat them to a white heat, but not enough to blister the iron. I find it better to drive the nails clear through, and clench them after they are driven, as in this way a neater clench is made.

Such gates as I have described look well, and are very quickly made. A good hand will put up five of them in a day—make them I mean, not hang them also. In hanging your gate, place the opening end at least one and a quarter inches above what you wish it to be, as any large gate, no matter on what kind of a hinge, will spring at least that much.

Indian corn, owing to the warm weather of June and July, has reached an extraordinary growth in the county of Lennox, and the present season is likely to be the best for that article that has been seen in many years in that section. The Napanee *Standard* says Mr. Jacob Schryver, of North Fredericksburgh, has shown a stalk which measures 10 feet in height, and says a large field from which it was taken will average about the same. Mr. D. Jennings, of Camden, also brought in some stalks measuring 9 feet 9 inches.

Stock Department.

Sundry Breeds of Swine.

In "Harris on the Pig," we find descriptions of some breeds of swine that are as yet unknown in Canada, and might be introduced with advantage for the purpose of improving the general class of those we already have by means of judicious crossing. Among the English breeds are two, named respectively "Cumberland" and "Small Yorkshire." The former is a somewhat coarse white breed, having no very high qualities of excellence about it except hardiness of constitution.

THE SMALL YORKSHIRE is a white breed peculiar to Yorkshire, and has many points of excellence. It has a short head and small erect ears, broad carcase, deep chest, small short legs, and fine bone. It is spoken of as being always ready to fatten and turn to account, either in the way of roasting pigs or small porkers. Three or four of them will keep well and fatten on the food which would barely suffice to keep one of the large Yorkshires.

THE YORK CUMBERLAND BREED.—By a judicious crossing of the above named two breeds, and perseverance in the cross, a breed has been obtained that combines the size of the Cumberland with the quality and symmetry of the Small Yorkshire. This has now been established as a distinct breed, under the name of York Cumberland, and seems to be carrying all before it at the shows in England as prize winners in the white classes. It is said of them:—"No animal of the pig species carries so great a proportion of flesh to the quantity of bone, or of so fine a quality, or can be raised at so small a cost for the pork made." The ordinary weight of these pigs, when slaughtered, at ten to twelve months old, is from 280 to 340 pounds dressed, but it is said they can be profitably got up to 600 pounds each, where large thick bacon is desirable. It is said to combine size with early maturity and aptitude to fatten, in a very remarkable degree.

THE WHITE LEICESTER.—This is another breed of which as yet but little is known. They are a medium breed, white in colour, averaging about 300 pounds each when fatted at a year old. A pair of them carried off the prize for pigs at the Paris Exposition, and a pair of them, that weighed 180 pounds each at 18 weeks old, carried off the gold medal at one of the Smithfield Club shows.

IMPROVED OXFORDSHIRE.—This is a black breed, produced from a cross of some Neapolitan boars on Berkshire sows, afterwards adding a dash of the Essex by using Essex boars from Fisher Hobbs to breed the sows of the cross to. The produce has been quite a hit, and has proved very successful at the Royal and Smithfield Club shows, as well as local ones. These pigs are of fair size, quite black, well covered with hair, very prolific, and good mothers and nurses. They are said to be remarkably healthy. They are especially adapted to dairy farms, and pork butchers, as they are said to give a larger proportion of lean to the fat than any other breed, and to be always in condition to kill for porkelets. At sixteen weeks old they will dress 90 pounds, at 9 months 220 to 280 pounds. With extra feeding, they will attain 400 pounds before they are a year old.

CHESTER COUNTY WHITES.—This is an American breed that originally appeared in Chester county, Pennsylvania. Mr. Harris appears to doubt if they are yet thoroughly established as a breed, but says the sows are admirably adapted to cross with boars of the refined English breeds. They are white in colour, and rather large in size, averaging about 500 pounds each at sixteen to eighteen months old. Some older specimens have gone to 900 pounds. They are hardy, strong, and vigorous, have good constitutions, and breed well, the sows being good mothers. They are heavy feeders, and require time to reach maturity and fatten well. Harris says:—"There are probably families among them that have been bred long enough together to permanently establish their good qualities. But it is certain that many Chester Whites have been sent out, that produce litters the pigs of which differ from each other as widely as the litters of common sows, and far more widely than the litter of a common sow got by a thoroughbred boar." Paschal Morris, of Philadelphia, who has bred them for many years, and probably knows as much about them as any one, says of them:—"There is a considerable misapprehension about this breed. It is constantly forgotten that it is not an original, but a *made-up* breed. They differ from each other quite as much as any one known breed differs from another." This, coming from such a source, is pretty good evidence that the Chester Whites are not an established breed, and can only be used to advantage in the same way as the common swine of the country, that is, to raise cross-bred pigs from, by putting the sows to a Suffolk or Berkshire boar, and thus obtaining pigs of a finer quality, earlier maturity, and more aptitude to fatten than the mother, combined with her size and strong constitution.

THE JEFFERSON COUNTY BREED.—This is a large white breed, originated in Jefferson county, New York State. For a dozen years past they have carried off all prizes at the New York State Agricultural Fair, against the Chester White and every other large breed. We saw several of them at the Fair at Elmira last Fall, and for their size they were the finest and handsomest pigs we ever saw of the white breeds. It is supposed that they originated from a cross of a boar imported from Yorkshire, probably a Small Yorkshire or York Cumberland, on a large sow of the old Cheshire breed, said to be the largest of the old English breeds. At first, it is said, they were very large, but rather coarse, but since then they have been bred more towards an approximation to the fine bone of the Small Yorkshire, or, probably, York Cumberland. They are still large, though not equal in size to the Large Yorkshire, but with very different characteristics. Their heads, in proportion to their size, are the smallest we ever saw on a pig; the ears are small and fine, pointing upwards and forwards, cheeks very full, bodies of great length and very compact, legs very short and small. They have very small bone indeed for such large pigs. They are as much superior in quality to the Chester White as any pig can well be. The breed, coming as it does from a cross of two pure breeds carried through several generations, may now be said to have become established, and certainly the young pigs we saw with some of the brood sows at the Fair were of most uniform type throughout the litter, and as perfect in form as could be desired. Boars of this breed would doubtless be found of great value to cross on other large breeds, especially the Chester White, when it is desired to retain size while improving quality. That this breed has derived its best qualities from the Yorkshire blood is admitted by those who have bred it longest.

THE MAGIE BREED.—This is not yet an established breed, though it may ultimately become so. It originated in Butler County, Ohio, from a cross first of Poland and Byfield, afterwards again crossed with some breed called Big China, which was probably a large variety of the once well-known Chinese hog. All these were spotted breeds. Somewhat later some Irish Graziers, a medium-sized white pig, of fine quality and great aptitude to fatten, were imported, and used much to cross on the already improved cross-bred hogs of Butler County. Lastly, the Berkshires were brought in, and were freely used in crossing upon the then existing stock. By careful selection, and breeding from the very best animals produced from these various crosses, Mr. David M. Magie thinks he has succeeded in producing a hog that as a breed may be said to have become established. This is, however, doubtful, and we should not yet be inclined to place much reliance on their fixity of character. These hogs, so far as published statements of their weights go, do not seem to be anything extra, either as regards size, or early maturity. Their average weight, when fatted and slaughtered, at eighteen months old, is given as 450 pounds, which is no more than we should expect from good cross-bred pigs out of a large common sow by an Essex or Berkshire boar. They seem to be a close approximation to the Berkshire, but with larger carcases and heads, and coarser bone. They might be greatly

improved, and perhaps increased in size, while reducing the offal, by using large Yorkshire boars of the very finest quality of bone that can be had.

The demand for very large hogs, however, is not now such as it was. Pork packers and bacon curers find it more profitable to encourage the raising of hogs of a medium size, say 250 to 350 pounds dressed weight, rather than larger ones. These very large hogs require more food in proportion to weight, to carry them through, than smaller and finer-bred ones do.

Cattle Feeding.

Mr. M'Combie, of Aberdeen, Scotland, one of the most eminent and successful of British feeders, in his recently published work, entitled "Cattle and Cattle Feeding," tells much that is valuable and interesting. Speaking of buying store cattle to be prepared for feeding, Mr. McCombie claims that animals that have been brought up on anything of a forcing system, to induce a large development at an early age, contrary to the general impression are not the ones that can be most profitably used to be fed for the butcher. He says "an animal well bought is half sold," by which he does not mean that a low priced one is to be preferred, nor yet one already half fat, but one that possesses the best points nscessary to ensure the making of a moderate amount of first-class beef on a small amount of food—in other words, an animal that has a kindly disposition to take on flesh and produce meat of a uniform good quality throughout the carcass. He gives the preference to those that have been raised in the poorer districts, kept through the winter in straw yards, with the addition of a few roots, having the run of common pasture during summer, with abundance of exercise, till they are fully grown, say four to five years old. He buys these in spring, takes them to where they can have a good range of richer pasture for the summer, just enough to fill them out with flesh, and as soon as the pastures are done and the time for housing comes, at the approach of cold weather he puts them in the byres, and commences the process of feeding by giving hay, roots and meal, gradually at first, for months together. As soon as they reach the point where no more flesh can be profitably put on them, they are crowded up on oil cake till they become "ripe," when they are sent to Smithfield market. The object aimed at is to make beef that is termed "marbled," i. e. the fat and lean thoroughly blended together throughout the carcass. This is the kind of beef that is most valued, and brings the top price in British markets, and gives the rich, juicy sirloins, ribs and steaks, that make the roast beef of Old England so justly famous the world over.

Americans have not yet reached a nice point of discriminating in judging of the quality of the meat they consume, and so our butchers are not able to offer the same inducements to feeders to undertake and continue the process of feeding in the same way as is done in Britain. Here the idea seems to be to put the fat all on the outside, and into the form of tallow, which can be cheaply and quickly done by feeding Indian corn, either whole or ground. By the time the animals have been fed on corn from two to four months, they will, even though thin in flesh, have quite a layer of fat between their ribs and hides, and sell readily as first-class beef, though the meat when cooked too often proves stringy, tough and oily. Time will doubtless work a change in our manner of feeding cattle for winter beef, but not until by the introduction of a really first-class article into the great city markets, the consumer will discriminate sufficiently to enable the butcher to pay such prices as will encourage feeders to take more time and pains to carry out the art of producing beef that will reach the standard of excellence attained in Britain.—*Country Gentleman.*

A correspondent informs us that in the County of Brant an application of one part of carbolic acid to five parts of linseed oil has been found efficacious in the treatment of the cattle fly ailment.

THE CATTLE-KEEPER'S TABLE,

Showing at one view when FORTY WEEKS will expire from any day throughout the year, saving much trouble to all persons for whom it has been calculated.

NAME OF THE COW.	Jan.	Oct.	Feb.	Nov.	Mar.	Dec.	Apr.	Jan.	May.	Feb.	June.	Mar.	July.	Apr.	Aug.	May.	Sept.	June	Oct.	July.	Nov.	Aug.	Dec.	Sept.
	1	8	1	6	1	0	1	6	1	6	1	5	1	7	1	8	1	5	1	8	1	8	1	7
	2	9	2	7	2	7	2	7	2	6	2	9	2	8	2	9	2	6	2	9	2	9	2	8
	3	10	3	8	3	8	3	8	3	7	3	10	3	9	3	10	3	10	3	10	3	10	3	9
	4	11	4	9	4	9	4	9	4	8	4	11	4	10	4	11	4	11	4	11	4	11	4	10
	5	12	5	10	5	10	5	10	5	9	5	12	5	11	5	12	5	12	5	12	5	12	5	11
	6	13	6	11	6	11	6	11	6	10	6	13	6	12	6	13	6	13	6	13	6	13	6	12
	7	14	7	12	7	12	7	12	7	11	7	14	7	13	7	14	7	14	7	14	7	14	7	13
	8	15	8	13	8	13	8	13	8	12	8	15	8	14	8	15	8	15	8	15	8	15	8	14
	9	16	9	14	9	14	9	14	9	13	9	16	9	15	9	16	9	16	9	16	9	16	9	15
	10	17	10	15	10	15	10	15	10	14	10	17	10	16	10	17	10	17	10	17	10	17	10	16
	11	18	11	16	11	16	11	16	11	15	11	18	11	17	11	18	11	18	11	18	11	18	11	17
	12	19	12	17	12	17	12	17	12	16	12	19	12	18	12	19	12	19	12	19	12	19	12	18
	13	20	13	18	13	18	13	18	13	17	13	20	13	19	13	20	13	20	13	20	13	20	13	19
	14	21	14	19	14	19	14	19	14	18	14	21	14	20	14	21	14	21	14	21	14	21	14	20
	15	22	15	20	15	20	15	20	15	19	15	22	15	21	15	22	15	22	15	22	15	22	15	21
	16	23	16	21	16	21	16	21	16	20	16	23	16	22	16	23	16	23	16	23	16	23	16	22
	17	24	17	22	17	22	17	22	17	21	17	24	17	23	17	24	17	24	17	24	17	24	17	23
	18	25	18	23	18	23	18	23	18	22	18	25	18	24	18	25	18	25	18	25	18	25	18	24
	19	26	19	24	19	24	19	24	19	23	19	26	19	25	19	26	19	26	19	26	19	26	19	25
	20	27	20	25	20	25	20	25	20	24	20	27	20	26	20	27	20	27	20	27	20	27	20	26
	21	28	21	26	21	26	21	26	21	25	21	28	21	27	21	28	21	28	21	28	21	28	21	27
	22	29	22	27	22	27	22	27	22	26	22	29	22	28	22	29	22	29	22	29	22	29	22	28
	23	30	23	28	23	28	23	28	23	27	23	30	23	29	23	30	23	30	23	30	23	30	23	29
	24	31	24	Dec. 1	24	29	24	29	24	28	24	31	24	30	24	31	24	July 1	24	31	24	31	24	30
	25	Nov. 1	25	2	25	30	25	30	25	Mar. 1	25	April 1	25	May 1	25	June 1	25	2	25	Aug. 1	25	Sept. 1	25	Oct. 1
	26	2	26	3	26	31	26	31	26	2	26	2	26	2	26	2	26	3	26	2	26	2	26	2
	27	3	27	4	27	Jan. 1	27	Feb. 1	27	3	27	3	27	3	27	3	27	4	27	3	27	3	27	3
	28	4	28	5	28	2	28	2	28	4	28	4	30	0	28	4	28	5	28	4	28	4	28	4
	29	5	29	6	29	3	29	3	29	5	29	5	28	4	29	5	29	6	29	5	29	5	29	5
	30	6			30	4	30	4	30	6	30	6	29	5	30	6	30	7	30	6	30	6	30	0
	31	7			31	5			31	7			31	7	31	7			31	7			31	7

Veterinary Department.

Flies on Cattle.

Considerable alarm has been excited in many parts of the country by the reports of a terrible cattle disease that had made its appearance, and had even, according to some accounts, proved fatal in many instances. We have personally investigated a number of these cases, and have also received letters from veterinary surgeons in different parts of the country, who quite concur in our own view of the matter. We have no hesitation in saying that all these cases of so-called cattle disease that have yet come under our notice are due to the attacks of flies, that at this season terment cattle, horses, and dogs. These insects have made their appearance somewhat earlier than usual, and have abounded in unprecedented numbers. The irritation and suffering they inflict has consequently been more than commonly serious. They puncture the skin, and produce irritable sores, which set up inflammation, swelling, and sometimes considerable constitutional derangement. It is quite possible that in severe cases among feeble animals a fatal termination may have resulted, but we have no doubt that in a large proportion of fatal cases death has been caused by some other complaint. There is therefore, we feel confident, no cause for alarm, and no insuperable difficulty in dealing with the "plague."

The methods of combating the evil are preventive and curative. To ward off the danger, we recommend that, as far as possible, cattle, as well as horses, should be housed during the day, and only allowed to feed in pastures at night. The stables should be kept as cool as practicable, and comparatively dark, with thorough ventilation and the strictest attention to cleanliness. The manure should be removed frequently and to a distance.

The flies are more numerous in low, wet meadows than in dry pastures, and it is probable also that wetting the skin, as the animals do by standing in the water, and subsequent exposure to the air, has a tendency to promote cracks and sores, just as a similar transition will produce in the human subject chapped hands and the like.

The practice of soiling animals during the day, instead of pasturing them, has other advantages besides protecting them in a measure from the evil under consideration, and has been found eminently economical in saving food and storing manure.

The curative treatment to be adopted consists in first washing the parts thoroughly with soap and water, and if there is much inflammation, fomenting with warm water. Afterwards apply with a feather a lotion consisting of equal parts of oil of tar and tincture of benzoin. Or a similar application may be made of impure carbolic acid, diluted with six parts of water to one of acid.

Flies on Horses.

Carbolic acid soap seems to be a most valuable remedy for most of the troubles and annoyances to which farm stock is subject. We have heard of so many wonderful cures and benefits rendered by it that we are beginning to be quite enthusiastic over it. As a sheep-dip, as an exterminator of vermin, as a plant-wash, as an ointment for galls and sores, in fact, as a remedy for almost every farm trouble it has proved successful. A friend of ours a few days since, being obliged to drive a valuable horse twenty or more miles, and knowing that flies would prove troublesome, conceived the idea that a wash of carbolic acid soap-suds over the entire coat of the horse would protect it from flies. The wash was applied, and through the day, although myriads of flies swarmed about the horse, and even alighted on it, not one made an effort to draw blood.

Now, with a remedy against these pests so easily available (a large piece of the soap costing but a few cents, and procurable at almost any drug store), there is no excuse for neglecting to provide it. Let a pailful be made and kept standing in the stable. Whenever a horse is to be taken out, either for the road, field or pasture, dip a sponge into the suds and moisten the animal's coat with it. The time required would not be a minute, and the cost not a cent, but the benefit rendered to the animal would be very great.—*Mass. Ploughman.*

Ergotized Grass.

To the Editor.

SIR,—I have frequently noticed during the present season that the seeds of some kinds of grasses, in meadows and pasture lands, have in some way deteriorated, or been superseded by a peculiar excrescence, which I suppose is caused by a parasitical fungus. I herewith forward sample. Will you have the kindness to inform me what is its nature and properties, and in what manner it will affect horses and cattle, which eat of it? Some farmers suppose that it is causing their horses to have a species of distemper with severe cough, which may lead to the heaves; others believe that it is affecting the blood of cattle, and gives them the hoof ail. In fact each has his theory, and various injurious results are imputed to it.

W. M.

Port Burwell, 1st August, 1870.

Reply—The sample sent is a specimen of ergotized grass, caused by a fungus somewhat analagous to the ergot of rye. If taken to any great extent, such feed is likely to prove injurious, either to horses or cattle. As to producing the specific diseases mentioned, we can scarcely hazard an opinion, but we have no doubt whatever that the disease known as heaves in horses, in many cases is the result of improper feeding, and especially using inferior kinds of hay, which appear to have a peculiar and injurious action upon the pneumogastric nerve.

Hoof Ail.

To the Editor.

SIR,—Please inform me of some successful plan for treatment of the hoof disease in cattle. During spring and early part of summer, I lost eight cows from my herd, several of them very valuable animals, and all in good condition. The first symptoms were slight lameness in the hind feet, which gradually increased without much swelling, until considerable exertions were required to make the animal stand at all. Soon after a fissure, varying in depth, would be observed encircling the feet at their juncture, and increasing daily in depth, without sloughing, until the entire removal of the hoof was effected, leaving the animal only the ends of its legs, with bones protruding, to stand upon. They become quickly emaciated, and soon succumb to the disease. In a few cases of those I treated, I met with partial success, but some of the animals are still quite lame. I hope that yourself or some of your numerous readers can give me some information on this subject.

A SUBSCRIBER.

Port Burwell, 1st August, 1870.

REPLY—The treatment of such severe cases of hoof ail as described above cannot be undertaken with any great success. The severe inflammatory action which causes a separation of the sensitive and insensitive structures should be allayed by the use of poultices, and placing the animal in a comfortable stall, which must be kept clean; if the toe of the hoof is unnaturally long, it should be cut off, as the extreme length of toe throws a greater strain upon the coronet. Whenever an eruption is observed, the parts should be dressed several times a day with carbolic acid lotion; the patient must also be allowed a liberal supply of the best food. One drachm of the iodide of potassium might be given once a day. In many cases it may be found necessary to use the knife and remove any detached horn; and, if any matter forms, a free exit must be given, otherwise the imprisoned matter will act as an irritant, and soon lead to a separation of the laminæ.

Veterinary Queries.

To the Editor.

SIR,—Will you please inform your readers whether the Charlier horse shoe has been tried in Canada and found satisfactory? Also give some description of the new Baltimore shoe, which is easily removable.

Is there any application (as glycerine) which will obviate the brittleness of hoof caused by standing on plank floors?

It is said that in England grass is cut early for young racers, and saved in a peculiar manner. How is it done? and would it not be good for other horses?

Books tells us that sows will always breed three days after farrowing. I have kept pigs for several years, but never had one to come sooner than three weeks.

J. C.

Orillia, July 20th, 1870.

REPLY.—We are not aware of the Charlier method of horse-shoeing having ever been tried in Canada. It is losing favour in Paris on account of its expensiveness. We cannot give you a description of the new Baltimore shoe.

Brittleness of the hoof is prevented to a certain extent by standing a horse for a couple of hours daily in moistened clay; the application of a hoof ointment composed of oil of tar one part, to eight parts of lard, is also attended with benefit.

If a certain kind of hay is good for race horses, it follows as a matter of course it must also be good for horses of another description. We believe that hay contains the greatest amount of nutriment when cut early before ripening takes places, and no doubt haymaking, like everything else, is better done in some parts than in others. English race-horses are usually fed on hay that is one or two years old.

Your experience with regard to sows breeding is the ordinary one. Instances of an earlier conception are exceptional rather than common.

Swollen Udder.

To the Editor.

SIR,—During the last two months our cow has been seriously afflicted with a swollen bag. As the swelling subsides, we get stringy or curdled milk from one or more teats.

If you know of any remedy, you will confer a great favour upon us by inserting it in your widely circulated paper.

A SUBSCRIBER.

July 1870.

REPLY.—Swollen bag, or inflammation of the udder, is usually best treated by cold applications. Apply a broad web of cloth around the cow, and cut holes in it to keep out the teats, then place some tow between the cloth and the udder, and keep it constantly moist with cold water. Give a good dose of purgative medicine, as three-quarters of a pound of epsom salts, dissolved in three quarts of water. When the swelling subsides, hand rub the udder several times a day, and give internally one drachm of the iodide of potassium daily for eight or ten days. The cow should be kept in a cool box or stall, and not exposed to the hot sun.

The Dairy.

Salting Dairy Cows.

The importance of salt for dairy cows is generally understood, but nevertheless it is much neglected. And where a quantity sufficient for a certain number of cows is supplied, it frequently happens that, from the manner in which it is fed, some animals get more than they require, while others obtain little or none at all. A late number of the *Rural New Yorker* has the following article on this topic:—

"The way to salt dairy cows is to have the salt conveniently located for stock where daily access may be had to it, and the animals allowed to take whatever their appetites crave. It may be placed in boxes arranged along in the feed alley of the stable, or in the troughs in the shed, or yard. When cows have free access to salt, they soon regulate their appetite to the daily use of small quantities of it, taking no more than is required to promote good health.

"Animals require more or less salt, according to the character of their food, and the practice of salting at certain intervals is often injurious, since they are liable to over-feed of it, causing excessive scouring and derangement of health. This is particularly the case when salt is thrown out to stock indiscriminately in the field at intervals of a week or more. In such cases, the master cows not unfrequently gorge themselves, preventing the weaker animals from getting a due supply, and thus one part of the herd is injured by over-eating, and the other part from not obtaining what is needed. When the animals have free access to salt, nature dictates as to its use, and hence, good results both as to health and the yield of milk follow.

"Salt is very necessary for milch cows. Without it the milk becomes scanty and imperfect. It is an important element in the blood, and furnishes the soda necessary to hold the cheesy part of the milk in solution. Maidlen found, in his analysis, 1,000 pounds contained nearly half a pound of chloride of sodium. There was also one and three-quarters pounds of chloride of potassium. There are various purposes in the animal economy that require salt, and cows in milk should at all times have free access to it.

"Perhaps the greater necessity for its use is in Spring, when cows are first turned to grass. The feed then is rather deficient in saline matter, and does not furnish sufficient for a large quantity of milk. As the grass becomes more mature, the mineral elements are more abundant, and there is less desire on the part of animals for salt. It is on this account, and because cows have been dried of of their milk, that in Winter much less salt is required in the dairy than in Summer. From experiments that have been made, it has been found that in May and June, when milch cows have been deprived of salt for several days the milk shrunk from one to two per cent. in quantity, and from four to six per cent. in quality. Later in the season the experiments showed less difference.

"Thus it will be seen, that dairy stock, to produce the best results, should have a daily supply of salt, and the quantity is much better regulated by the animal than it can be by the stock-keeper who doles it out at intervals.

The Production of Cheese.

It is estimated, says the New York *Mercantile Journal*, that there are in the United States and Canada 1,000 factories, whose average production is equal to 117,250 boxes. The cheese made in the United States and Canada in 1867 reached 215,000,000 lbs., and in Great Britain, 179,000,000 lbs. The consumption in America during the same period amounted to 160,000,000 lbs., and in Great Britain to 400,000,000 lbs., leaving a deficiency over the joint-production of the two countries of 75,000,000 lbs. This deficiency was supplied by Holland and Belgium. The principal States engaged in the manufacture of cheese in this country are New York, Vermont, Massachusetts, Pennsylvania, Illinois, Ohio, Michigan, and Wisconsin. Western New York, the Western Reserve, and some sections of Illinois and Michigan, enjoy a deservedly high reputation for the excellent qualities of the products of their dairies. England has long been justly celebrated for the abundance and superior quality of its cheese. Cheshire, Stilton, Derbyshire, Suffolk, and Cheddar, are the best known varieties. Gouda cheese, the best made in Holland, is very pungent, which preserves it from mites; and this pungency is attributed to the fact, that muriatic acid is used in curdling the milk instead of rennet. Parmesan cheese, made at Parma, in Italy, owes its rich flavour to the fine sweet herbage of the meadow along the Po, where the cows are pastured. The best Parmesan cheese is kept several years, and none is sold until it is at least six months old. Swiss cheese is made, in part, of skim-milk, and is flavored with fragrant herbs. They usually weigh from 40 to 60 lbs. each, and are exported in casks, each of which contains ten cheese. Westphalia cheese derives its flavour from the curd being allowed to become soured before it is compressed. Dutch and Swiss cheese contains, according to chemical investigation, from 26 to 40 per cent. of nitrogenized matter, considered the most nutritive constituents of food. The best cheese is from 22 to 100 per cent. more nutritious than bread and meat, which contain only about 22 per cent. of nitrogen. The superior qualities of cheese have been repeatedly proved by the experience of labourers in those countries where it forms one of the principal articles of food. To delicate stomachs, cheese is objectionable, on account of its slow and difficult digestion; but to individuals of great physical strength,

it is a healthful and agreeable article of consumption. In combustible or heating qualities, cheese is only exceeded by oil, butter, and like unctuous substances.

Butter for Winter Use.

Mary A. Lee, of Cain, Pa., writes to the American Institute Farmers' Club on the subject of making butter for winter use. She says that butter made in October and November, if good, may be kept so by printing in small table prints, and sprinkling each with salt, and laying loosely in a stone jar. To keep butter good that is made in the fall is one thing, but to keep that good which is made in early summer is quite another. The best and richest Pennsylvania butter is made in May, June, and July, when the cows' milk is strong, and before the flies trouble them too much. The best of butter may easily be kept good till April; and this is the way to do it:—

First:—It must be good butter when made; all the buttermilk must be worked out, and in doing this keep it out of water—don't have any water come in contact with it. Butter that is washed in working, as it is termed, if good, would be much better if it had not been washed. Salt to suit the taste of those who are to eat it; half an ounce of salt to a pound of butter is about right; keep out saltpetre, sugar, and all other curative ingredients; it will keep better without them, and perhaps, too, without salt, but will not be so palatable. Do up the butter after each churning in neat, round rolls of two or three pounds each; cover each roll with a clean muslin cloth, large enough to go round it twice or more, so that it will be completely enveloped, and sink it in a strong brine as strong as the best salt will make it. Stone vessels are the best, and each roll, as it is put in, may be sunk by placing a clean stone on it.

Continue to add more rolls until the vessel is full, always keeping the whole completely covered with brine, and to insure strength add more salt when full. Keep it in the cellar or spring house, and see if it is not worth in winter or spring 100 per cent. more than any winter-made butter. In this manner a supply of choice butter may be kept perfectly safe. But, mark, the butter must be good—well made by one who understands how to do it, must be well worked, and should by all means be wrapped up, and sunk under the brine, the same day that it is churned, not kept lying around for two or three days after churning.

A good spring, with the water at 56 degrees, is indispensable to make the best butter in the summer months, and then it must be churned slowly, that it may come solid. Bradley's Atmospheric Dasher Attachment is superb, making the old barrel churns complete atmospheric churns, with half the revolutions breaking the butter just as soon; then, in warm weather it is solid and firm, and no trouble to wash out the milk.—*Prairie Farmer.*

Accounts with the Cows.

The author of Ogden Farm Papers in the *American Agriculturist* says:—We are just commencing to keep a record of the weight of milk given every morning and evening by each cow. A printed blank for each week is tacked against the wall, and a lead-pencil hangs near it. As each cow is milked, the pail is hung on an ordinary spring scale. The pails being of uniform weight, it is easy to make the record sufficiently accurate for practical purposes. At the end of each week the total yield for each cow is footed up, and divided by seven for the daily average. The total weekly yield of the whole herd is also recorded. The utility of such a record, especially if continued for a series of years, will be great. It will show: 1. The performance of each animal in her different conditions, and especially the degree in which she holds to her milk towards calving time. 2. The relation that the progeny bears in its milking qualities to its dam. 3. The milk producing quality of the progeny of certain bulls. 4. The effect of different kinds of food, and of different systems of feeding on the production of milk. 5. By comparing the weekly yield of milk with the weekly production of butter, the effect of feeding can be determined in regard to this latter.

The practical results of the knowledge thus obtained will be valuable. We shall know which animals to sell and which to keep; which bulls to breed from; which families to depend on for the final herd, and what methods of feeding it is best to pursue in winter and in summer—this will be especially valuable as showing the relative advantages of soiling and steaming, as compared with dry feeding and pasturing, and the relative value of corn meal, wheat, bran, etc.

How to Treat Kicking Cows.—A friend told us the other day of a method of treatment that he had found successful in curing cows of the habit of kicking while being milked. It is as follows:—As the cow stands in the stancheons, he puts a bull-ring in her nose, throws the rope attached to the ring over a beam or girt above the head of the cow, and drawing her head as high as possible without raising her feet from the floor, makes fast the end of the rope. The cow cannot kick while standing in this strained position, and the milking process is then conducted gently and rapidly. As soon as she learns that she has nothing to fear from the milker, but everything to fear from the ring—and this knowledge she is said to acquire rapidly—she is cured of her disagreeable habit. A young heifer may often be thus cured by a single application.

Grafton Cheese Manufacturing Company.—A company is about being formed for the manufacture of cheese in the vicinity of Grafton. The committee, appointed for that purpose by a public meeting, have secured a most favourable site, about one mile west of the village. Nearly all the required capital is already subscribed, and the buildings, upon quite an extensive scale, will be proceeded with at once, to have everything in complete readiness for business next spring.

Poultry Yard.

Physiology of Eggs.

Every fowl has two small organs near the extremity of the body, called the ovaria. It is filled with elastic tissue, and feels under the finger like sponge. The eggs are started here, and those which will mature a year, or two or three years hence, are in embryo. One is forced up and seized by the stroma, which is seventeen inches long, and passed rapidly through. When the egg leaves the ovary it consists of yolk only, but in its passage through that short canal, the yolk is surrounded by enough albumen to perfect the chick. The white of the egg has in it all that nature requires for making bones, muscles, blood-vessels, connecting tissue, skin and feathers. Just before the egg leaves the body, this canal has the power of secreting lime for the shell. This shows how valuable the egg is as nutriment, and it also shows what demands are made for rich food by a hen that lays an egg daily. Besides what she requires for her sustenance, she is called upon to secrete the material for the body of an entire chick, and also retains for the little creature sufficient to last many hours after it leaves the shell. It shows also that a hen cannot make albumen so rapidly, except out of albuminous food, such as wheat, meat, and small animals. It is not true that there is a certain number of eggs, and that, this number exhausted, no more can be expected; but it is true that the secretions lessen as old age comes on, and latterly the hen fails to have sufficient force to carry forward the process. The practical bearing of this is, that we must see that the fowl is always well kept. The way to have good laying pullets is to quicken the circulation and strengthen the system by liberal nutriment.—*Ex.*

Vulture Hock.—A correspondent wishes to be informed as to what constitutes this defect. The vulture hock is the projection of feathers behind the knee, and inclining towards the ground. The feathers of a fowl's leg usually should be close around the knee, and the leg clean below it, like that of a boy wearing Knickerbockers. In a few breeds, such as the Booted Bantams and Ptarmigans, this kind of feathering is necessary, but in Cochins and Brahmas it is considered a serious defect.

Loss of Feathers.—This is a complaint to which fowls confined in close yards or houses are liable, and is best combated by scrupulous attention to cleanliness, and by giving with dry food a supply of vegetables and insects, and other animal substances. Tegetmeier recommends five grains of Plummer's pill, given occasionally at intervals of two or three days. But, as this composition contains calomel, we doubt its propriety or efficacy for poultry. A little sulphur might be useful, but diet and cleanliness are the chief points in the treatment.

Entomology.

The Cattle Fly.

From many parts of the country, as well as from this neighbourhood, we have received complaints of the grievous injuries inflicted upon cattle by the attacks of a small fly. Many cases also have come under our own notice. In some localities, the attacks of this creature have been so numerous and persistent, and the irritation produced by them so severe, that the farmers have concluded that their cattle were afflicted by some malignant disease of a novel and destructive character. Their alarm, we trust, has been to some extent allayed by the letters of Mr. Smith and others, that have already appeared in the Daily Globe. We now hope that they will relinquish their fears and set to work at once to employ the means recommended for the alleviation of their stock, and the warding off of the enemy.

The fly that has been doing all the mischief is called the *Stomoxys calcitrans*—the former name meaning "sharp-mouthed," the latter "kicking," applied to the insect from the effect its bite produces upon cattle. It is smaller, but resembles considerably the common house-fly (*Musca domestica*), and belongs to the same family (*Muscidæ*) of two-winged insects. Upon close examination it will be found to differ from the house-fly in the form of its proboscis, which is very long and slender, and projects horizontally from the head. It lays its eggs in the dung of stables and barn-yards, upon which its maggots feed. It closely resembles the house-fly in its transformations. The usual time of appearance of this insect is the end of August and early part of September, but this year, owing probably to the unusual heat of May and June, it has been developed earlier, and become infinitely more numerous than in ordinary seasons. The same excessive development has taken place in the house-flies this year, and is the subject of bitter complaint all over the Province. The cattle fly often comes into houses in rainy weather, and does not scruple to attack human beings, inflicting a sharp wound, and usually drawing blood. We have often been tormented by them, and observed the structure of their proboscis and their mode of procedure. The house-fly worries by creeping over the skin and putting down its trunk-like sucker to draw up the moisture; but the cattle-fly thrusts its sharp-pointed proboscis into the flesh, and proceeds to imbibe the blood of its victim, causing him to start, and possibly execrate the molester. The effect produced upon the legs of cattle by the combined attacks of hundreds or thousands of these creatures can readily be imagined by any one who has experienced the bite of a single specimen; the wonder is that the poor creatures display the amount of patience that they do.

The only remedies that we know of for warding off these pestilent creatures are the following: 1. Wash all the parts liable to be attacked with an infusion or "tea," made of the common smartweed (*Polygonum hydropiper and P. acre*) which grows in waste places all over the country, especially in spots which have been covered with water in spring and fall, but are dry in summer. 2. Wash the animal with a solution of carbolic acid soap. These are both useful preventives. For treatment of cattle already affected, we must refer the reader to the veterinary department, as that part of the subject does not come within the scope of practical entomology.

All our readers have, no doubt, heard, if not read, about the "Tsetze fly," which is so destructive to cattle in Central Africa. Its ravages have been vividly described by Dr. Livingstone in his "Missionary Travels and Researches in South Africa." This formidable insect (*Glossina morsitans*) belongs to the same family (*Muscidæ*) as our insect, but it is of a larger size, and of a much more dangerous character. It stings mortally the ox, horse, sheep, and dog; but is not dangerous to man, to any wild animals, or to the pig, mule, ass, or goat. "It darts from the top of a bush as quick as an arrow on the object it wishes to attack," writes a French traveller. "This sucker of blood secretes in a gland, placed at the base of its trunk, so subtle a poison that three or four flies are sufficient to kill an ox." Thank God, we have nothing so terrible in North America!

Black Currant Worm.

Our Black Currant trees were desperately attacked this summer by the Measuring Caterpillar, a yellow variety somewhat different to that of last year. The eggs are laid by a dun, yellow-coloured butterfly, or rather moth; and two weeks since there were scarcely any leaves remaining on the whole row of trees. We had tried hellebore, tobacco, lime, whitewash, alkali, soap suds, hot water, and indeed almost everything we could think of—amongst the rest, coal oil mixed with water, and during the application kept in constant agitation, so that only a small portion was very sparsely distributed with the water over the bushes. All would not do; nothing killed these pests. At last, in desperation, we tried corrosive sublimate, one ounce dissolved in four pails of water—a most deadly poison—with which we watered the trees freely, believing nothing with life could withstand this treatment. But the worms "increased and multiplied," until absolutely starved away for want of food. The curious fact connected with the treatment is, that the currant crop does not seem at all injured, there being now more ripe currants and currants yet to ripen than we ever had before, although somewhat late, and a fresh crop of leaves again graces the trees; very young, to be sure, but bidding fair to be as great as ever. The worst is to come; now that we have a crop and the worms are all gone, we have used so many poisonous articles as to make us fear to eat the currants. Probably the wet weather may have washed away the corrosive sublimate; but we do not know this, and consequently are afraid to make any pies or preserves with them.

It is, however, a curious fact that the denuding the bushes of their leaves should not have ruined the crop of fruit. It certainly somewhat retarded the ripening, but does not seem to have injured the quantity. Last year our red currants were stripped in the same way, and great loss was sustained to the crop, and I am aware of many who lost trees and all by the worms. Whether we ultimately killed the worms or not I do not know, but believe not, as no application that we could subject them to seemed to hurt them in the least.

C.

About CaterpiHars.

To the Editor.

Sir,—Trees generally have had a large assortment of caterpillars this year. Elms were considerably affected early in the season, and just now I see some very large caterpillars marching in solid phalanx over the white willows. Apple trees have furnished a great variety. The ordinary Tent Caterpillar was numerously represented in May. Now we have the Fall Web-worm, also using a tent, and two other kinds which march in a body. One of these was described in the Canada Farmer last year (page 328), from specimens which I furnished. The other resembles it in its habits, and I will send a specimen with this communication. But in addition to the above we have some queer customers who work singly.

1st. A large green worm resembling the much dreaded Tomato-worm, but devoid of *that horn*. It is rather prepossessing in appearance, having two rows of orange protuberances on the back; the front ones marked with dark spines, and side rows of fine blue spines. I kept one on a small crab-apple tree, but it suddenly disappeared. 2nd. A bristly caterpillar (as per specimen forwarded) having an imitation of four feet extending laterally, and composed of black bristles. The body is mostly covered with yellow bristles, while both sides and four spots on the back are black. 3rd. An extraordinary-looking smooth green worm, with a yellow ring about its stout neck. Its body tapers from head to tail—and such a head! It resembles the head of a codfish, or some other fish; even the eyes are there. It has a flesh-coloured-extension-style of snout, and when angry, which is not seldom, it projects two horns, which give forth a perfume just like that of the Celery-worm. I will send you

the only specimen I ever saw; notwithstanding his uneven temper I hate to part with him.

I should be glad to know more of these solitary kinds of leaf eaters.

E. R. M.

Halloway, Aug. 9th, 1870.

NOTE BY EDITOR.—The caterpillars "marching in solid phalanx over the white willows" are, no doubt, the large black spiny larvæ of the Camberwell Beauty Butterfly (*Vanessa antiopa*, Linn.), which we have figured in the August number of the CANADA FARMER. The large green worm, one of the "queer customers who work singly," is the larva of the Cecropia Emperor-moth, referred to several times lately. It appears to be very common this year; we recently observed a small tree at Collingwood with about twenty specimens upon it, which the owner killed with coal oil. The "bristly caterpillar" belongs to the family of "Woolly Bears" (*Arctiadæ*), so called from the shaggy appearance of the caterpillars; some species of this family are very destructive, as, for instance, the Fall Web-worm (*H. Textor*), while others are rare and very beautiful, both in their larval and winged states. We are not familiar with the specimen before us, and therefore cannot give its specific name. The "extraordinary-looking smooth green worm" is the larva of one of our handsomest butterflies—the Tiger Swallow-tail (*Papilio turnus*, Linn.). The strange mimickry of a head presented by the anterior segments of this caterpillar, and one or two others of the same genus, is very remarkable; it is probably intended by a wise Creator to render their appearance formidable and save them from the attacks of enemies. This species feeds upon the leaves of apple and cherry trees, but is never sufficiently numerous to inflict much damage. When full-grown, towards the close of summer, it selects some secluded spot and turns into the chrysalis state, first attaching itself by the tail to some convenient object, and then supporting itself by a silken girth passed around its body. It remains in this state all winter, and appears as a large handsome yellow and black butterfly in the following [illegible]. All the caterpillars of the Swallow-tail butterflies (genus *Papilio*) possess the curious orange coloured tentacle shaped like a Y, and giving out a strong and rather disagreeable odour. The "celery-worm" referred to is the larva of the Black Swallow-tail (*Papilio asterias*, Fab.)

Entomological Queries and Replies.

EMPEROR MOTH CATERPILLAR.—A. R., Hagarville, Ont.—The large caterpillar found by your wife on the apple-tree is a specimen of the larva of the great Cecropia Emperor-moth; it is quite different from the Tomato-worm, and is not at all poisonous. You will find a picture of the moth and the cocoon formed by the caterpillar in the July number of the CANADA FARMER. The eggs so tightly fastened to the limb of your apple-tree do not belong at all to this insect, but were laid by a very much smaller moth; if allowed to remain on the tree they would hatch out early next spring, and produce a brood of the well-known Tent-caterpillars. You do well to burn all you can find.

IO-MOTH CATERPILLAR.—B., Mimico, Ont.—The beautiful, pale yellowish-green caterpillar, covered with tufts of branching spines, and with a red and white stripe for three-fourths of its length along each side of the body, found by you on a currant bush, is the larva of the handsome Io-moth (*Saturnia Io*, Fab., *Hypercheria varia*, Walk.). It is almost the only caterpillar we know of in this country that can in any way injure the human person; if handled incautiously, its prickly spines will sting the more tender parts of the body—as, for, instance, the back of the hand—like a nettle. The moth is of a very beautiful bright-yellow colour, and has its hind wings adorned with a handsome eye-like spot resembling that on peacocks' feathers; it is thus somewhat similar to the Polyphemus Emperor-moth, figured in the July number of the CANADA FARMER, but is much smaller, its wings only expanding to a width of about three inches. The caterpillar feeds on a great variety of trees and plants; viz. willow, elm, balsam, poplar, dogwood, assafras, locust, cherry, Indian corn, clover, hop, and—according to you—currant also.

WALKING-STICK INSECT.—W. Woodman, Leaskdale, Ont.—The strangely-shaped specimen that you captured on the outside of your window-sash is a female Walking-stick Insect (*Diapheromera femorata*, Say). We were glad to receive the eggs that you enclosed, being two out of five that the creature laid the first night of its capture; we have had specimens of all sizes and ages of the insect, but never before saw its eggs. The male differs from the female in being of a greenish and not brownish colour, and in being furnished at the extremity of the abdomen with a singularly shaped pair of claspers, instead of an ovipositor. The eggs are of a flattened oval shape, whitish on one edge, very dark brown on the sides and other edge, and with a black ring around the tip of one end which is of a paler colour. You will find some account of the creature in the last number of the WEEKLY GLOBE, and further remarks in the January number of the CANADA FARMER.

CRICKET AND HAIR-SNAKE.—G. G., Beachville, Ont., writes as follows:—"When crossing the parlor floor this evening I stepped on a cricket; at the moment my daughter was busy at the table securing some butterfly specimens in a case, and stooping down I lifted the cricket to prevent its being squashed on the carpet, and handing it to her I said 'There is something else for you to stick a pin into.' She took up the cricket, and on examining it said, 'Why, this cricket has a tail!' and almost in another instant she exclaimed 'Father, look at this!' On turning, I saw a snake-like production, which had just come from the cricket, wriggling on the table. Now, this may be a common enough production, but—in my ignorance, perhaps—it seems to me very curious and uncommon. I should, therefore, like to hear some scientific account of it. The product of the cricket has a mouth, and it measures eight inches in length; and what astonishes me most, perhaps, is how such a thing could pack itself away in the body of this small cricket."—The occurrence thus graphically described is certainly one of the curiosities of nature, though not altogether uncommon. The snake-like creature is one of the so-called Horse-hair Snakes, a species of parasitic worm (*Gordius*) about which we have said a good deal in these columns. A short account of the creature will be found in the July number of the CANADA FARMER. It is certainly a great marvel how eight inches of Gordius can be packed away in a small cricket, though, to be sure, the former approaches very nearly to the mathematical definition of a line, "length without breadth," and can coil itself up into a very small compass.

VARIOUS CATERPILLARS.—Subscriber, Toronto.—The large caterpillars, whose spines caused a prickly sensation when they came in contact with the fingers, are specimens of the larvæ of the Io Emperor Moth (*Saturnia Io*, Harris; *Hyperchiria varia*, Walker), the only Canadian caterpillars we know of that possess this urticating power. They feed upon a great number of plants, as we mentioned in a recent reply to "B, Mimico." The pretty green caterpillar with golden yellow and black oblique stripes along the sides, and a stiff projecting tail at the posterior end, is the larva of the Ash-coloured Sphinx (*S. cinerea*, Harris). It feeds upon the leaves of the lilac and privet, coming to its full growth about the close of the summer, when it goes down into the earth and forms its chryaalis, emerging as a large ash-coloured humming-bird moth during the following July. The caterpillar sent was not nearly full-grown; they sometimes attain to the length of nearly four inches. The tomato with the caterpillar inside, that you speak of having sent us, has failed to make its appearance; the insect was probably the Bell-worm (*Heliothis armigera*, Hubr.), which is very injurious to both corn and cotton in the United States, and also shows a great fondness for tomatoes.

CATERPILLARS DESTROYING CARROTS.—We have received from an anonymous subscriber several beautiful velvety-green caterpillars, ornamented with transverse bands of yellow and black spots; he complains that they are destroying his garden carrots, and desires to learn from us something about them. They are the larvæ of the handsome black Swallow-tail Butterfly (*Papilio asterias*, Fab.). These caterpillars feed upon a large number of both wild and cultivated species of umbelliferous plants. Harris enumerates the following:—Parsley, carrot, parsnip, celery, anise, dill, caraway, and fennel of our gardens, as well as on the conium, cicuta, sium and other native plants of the same natural family." They are not often so numerous as to be destructive, but when they are, the only remedy appears to be careful hand-picking.

COLORADO POTATO-BEETLE AT STRATFORD.—Our friend, Mr. N. H. Cowdry, of Stratford, Ont., has sent us a specimen of this beetle, which was found on a sidewalk in that town on the 23rd of July. He remark that "it has probably done no harm among the potatoes this year, as there have been no complaints as far as I have heard, and this is the first one that I have seen." We fancy that we shall hear complaints loud and deep from the potato-growers of Stratford next year, if the advanced guard of the Colorado army has already reached them; we trust they will keep a sharp look-out and destroy the invaders as fast as they make their appearance. It is astonishing how rapidly this pestilent insect is advancing eastward.

SPIDER AND WASP.—F., of Fergus, Ont., writes as follows:—"I send you what is a stranger to me, a white and pink spider which I captured two days ago with the wasp dead in its arms, clinging to the sweet-pea. If you notice the colours, you will observe, that, to a shade almost, those of the spider and sweet-pea are identical. The spider was hard to kill, as it fell into the phial of alcohol and lived two or three minutes. The likenesses of the large moths in the last number of the CANADA FARMER are capital." We have several times observed this pretty species of spider about flowers, though not always the sweet-pea; its colours are probably designed to render it inconspicuous when amongst flowers, both to its enemies and to the objects of its attack. The wasp, a large "Yellow-jacket," much bigger than the spider, had evidently "canght a Tartar," and found his wily antagonist more than a match for him.

CATERPILLARS.—We have received by mail a box of caterpillars, bearing the Kincardine post-mark, but with no name attached to it. It would have been much more satisfactory had the sender afforded us a little information as to his desires regarding the specimens; however, we shall take it for granted that he wants them to be identified for him.—(1). The two large green caterpillars, each furnished with a curved reddish-coloured tail, and ornamented on each side with seven oblique lilac stripes, edged with white below, are larvæ of the Plum Sphinx (*S. drupiferarum*, Smith & Abbott). They pass the winter in the pupa state under ground, and emerge as large ashen-coloured "humming-bird" moths in the following summer. One of these caterpillars has been attacked by some parasitic ichneumon, and appears decidedly unhappy; his days are evidently numbered.—(2). The small hairy caterpillars are specimens of the Fall Web-worm (*Hyphantria textor*, Harris), which lives in communities protected by large web-covered nests on apple, plum, cherry, ash, willow, and various other trees. It must not be confounded with the Tent Caterpillars (*Clisiocampa*), which appear in early spring and turn into rusty-brown coloured moths; but it appears about midsummer and remains upon the trees till late in autumn, coming out the following year as a pretty snow-white moth, free from any markings on the wings, but with its fore-legs yellow, and feet alternated with black and white.

WALKING-STICK INSECT.—W. Coleman, Vroomantown, Ont.—The curious thin-bodied, long-legged insect, much resembling a stick with legs to it, that you have sent to us, is a specimen of what are commonly called Walking-stick Insects or Spectres (*Diapheromera femorata*, Say). Like the so-called Hair-snake (*Gordius*) that ignorant and superstitious people believe to be derived in nine days from a horse-hair dropped in water, this singularly shaped creature has been the subject of many wondrous stories. One, for instance, relates how a dead stick sprouted and put forth legs, and presently walked away before the affrighted gaze of the historian, who thereupon believed that some dire event was about to befall the human race! This odd creature is not uncommon, but is seldom observed by unpractised eyes, owing to its wonderful resemblance to a stick; it feeds upon young shoots and tender leaves, but is never numerous enough to cause appreciable damage.

BEE HAWK-MOTH.—John Carroll, Oakville, Ont.—The moth you sent us is a specimen of what is sometimes called the Bee Hawk-moth, or Clear-wing (*Sesia diffinis*, Boisd.); the former name is given to it from its resemblance, when hovering over flowers in the hot sunshine, to a Humble-bee, and the latter from the transparency of its wings. It belongs to the Humming-bird or Hawk-moth family (*Sphingidæ*), most of the members of which appear at twilight, poising themselves on their rapidly vibrating wings over flowers, and extracting the sweet juices with their long flexible tongues. The caterpillars of this family are furnished with a stiff, horn-like tail, the supposed sting of the innocent, but much blamed Tomato-worm.

THOUSAND-LEGGED WORM.—The Thousand-legged Worm or Millipede (*Iulus*) recently left at our office is not a true insect, but belongs to the Myriapods. Its body is of a dark chestnut colour, about three inches long, cylindrical in shape, and with an immense number of short legs; it crawls with moderate rapidity, and coils itself up on its side when at rest. It lives under old logs, where we have often found specimens when searching for insects, and feeds upon decaying vegetable matter. By many it is called a Centipede, and therefore thought to be poisonous like the creature of that name in tropical countries, but it is very different in reality, and possesses no noxious qualities whatever.

STRANGE CATERPILLAR.—Daniel Reynolds.—The beautiful green caterpillar, with the strange eye-like spot, found by you on a dish of apples, is the larva of the handsome Tiger-Swallow-tail Butterfly (*Papilio turnus*, Linn.). See our remarks on the communication of E. R. M., headed "About Caterpillars," for further particulars respecting this creature.

The Apple Curculio.

(*Anthonomus quadrigibbus*, Say.)

We have received from J. H. H., Millbrook, Ont., a specimen of the Apple Curculio—an insect that has not yet been much observed in Canada, though well known to entomologists in the western parts of Ontario. Our correspondent writes that "it had done a good deal of damage by eating a considerable portion of the surface of several apples. I could only (he adds) find a single specimen, though the appearance of a number of apple showed that there were more."

The accompanying illustration gives an excellent representation of the Apple Curculio, considerably magnified, the natural size

being shown by the small figure *a*. *b* represents a side view, and *c* a back view of the beetle.

This insect is about the same size as the only too-familiar Plum Curculio (*Conotrachelus nenuphar*, Herbst.), but may be readily distinguished from it by its much longer and more slender snout; its colour, which is dull brown, shading into rusty red behind; and the four conspicuous humps on the wing-covers behind the middle, which are brownish-red, and not shining black, as in the case of the Plum Curculio. Its original fruit appears to be the fruit of the hawthorn and other similar indigenous trees, but of late years it has been found to attack the apple, often to a very injurious extent. The late Mr. Walsh relates in the *Practical Entomologist* that, in 1864, fully one-half of the fruit of some trees at Beverly, Illinois, had been punctured by it, hardly an apple on the lower limbs escaping its attacks, and many having eight or ten holes in them. It makes round and not crescent-shaped holes in the fruit, most of them apparently for the purpose of eating, as but a small proportion have been observed to contain eggs or larvæ. The only known remedy for its attacks is vigorous and continued "jarring."

Apiary.

Feeding Bees and Strengthening Stocks.

Feeding or strengthening weak stocks by giving cards of honey from strong ones is generally delayed too long. The bee-keeper will find it a great saving of syrup or honey, to feed early, as the bees will deposit far more of what they take up if fed just at the close or winding up of the honey harvest. In all localities where there is but little fall pasturage it would be well to feed in August, or at the latest by the first of September.

At this season most of the feed given them will be deposited in the cells, and capped over the same as the honey brought in from the field, which prevents its becoming sour and unfit for winter use. And if stocks are to be strengthened, it disturbs the bees far less to do so while the weather is warm, and the bees will not consume so much of what is given them if it is given early, when they are gathering a little. Feeding or giving cards also stimulates to greater industry, and seems to encourage labour in the field, when given early, before all the flowers are gone.

Let bee-keepers try it, and they will not feed late afterwards. As a rule, it does not pay to keep stocks that require much feeding; still, many stocks with a very little early feeding would become good ones, and in such instances it pays to feed.

J. H. THOMAS.

Brooklin, Ont.

The Honey Season of 1870.

Now that the honey harvest is over, or nearly so, for this season, it may be well to compare notes with last year. For several years past we have not had what might be considered a first-rate season for bees, but that of last year proved to be the worst we have had for years. The season was wet and cold, bees could not work well, and the honey gathered was of an inferior quality.

At the time bees were put into winter quarters, the best judges supposed that the stocks had sufficient stores for winter use, but it appears that the hives were weighted with bee-bread to an unusual degree, and the honey was poor. The consequence was that there was a fearful loss of bees throughout the country, many even losing their entire stock, while others lost heavily. Hence this season opened with fully one-half less of bees in the country than last fall. The season, however, though a little dry, has been one of the best for many years, so much so that the loss of last winter is nearly if not quite made up, and far more honey has been taken than for years past, while the increase in stocks is all that can be desired.

The honey gathered is of an excellent quality, and stocks generally are well supplied with winter stores. O FitzWilkins writes that from one stock in a Thomas hive he took four boxes of twenty pounds each, making eighty pounds of pure virgin honey, and 142 pounds from the body of the same hive, with the honey extractor, making altogether a yield of 222 pounds of honey from one stock, which at 20 cents per pound would amount to $44 40. Mr. John McLatchie, of New Edinburgh, writes that in the spring he commenced with 57 stocks—50 good and 7 weak or poor ones. He increased to 96, and took in boxes a little over 2,000 pounds in virgin honey, and 500 pounds with the honey extractor, making altogether an increase of 39 stocks and 2,500 pounds of honey from 57 stocks, including the weak ones.

The prospect is also that bees will go into winter quarters more than usually well stored with good honey, and if all be well we may expect them to come out in fine condition in spring.

J. H. THOMAS.

Brooklin, Ont.

NOTE.—Since writing the above we received a letter from Mr. McLatchie, saying that on the 17th August 46 stocks of bees, about 2,000 pounds of honey, and all his surveying instruments and clothing, were consumed by fire.

Ventilation of Stocks in Winter.

After all that has been written relative to the ventilation of hives in winter, the right principle is little understood. It is true that bees winter better when the moisture is carried off by upward ventilation, provided the heat is retained; but it is absolutely as necessary to retain the heat generated by the bees in the hive as to get rid of the moisture, if the former object is not even more imperative. Evidently, then, proper ventilation should allow the moisture to escape while the heat is retained. This may be done in the following manner. Cover all upward ventilating passages or openings with some warm material that will absorb the moisture, but retain heat. Thick flannel or woollen cloth, an old bag, or quilts made for the purpose, will answer. Hence, if the honey-boards of the Thomas hive are removed entirely, and a frame covered with wire cloth or strong linen put on instead, and over this some warm material, the moisture would entirely escape, leaving the bees and combs dry, while all the heat would be retained.

J. H. THOMAS.

Brooklin, Ont.

An army of bees are said to have swarmed into a church in Gloucester, Mass., one Sunday, during divine service, but retreated when the sexton shook the contribution box at them.

Bee Culture—Controlling Fertilization—Hungarian Process.

Mr. Semlitsch, an experienced German apiarian, communicates to the *Bienenzeitung* a method of controlling the fertilization of queen bees with selected drones, which is merely a modification of the plan already made public, but which will interest apiarians, and may suggest some useful practical hints. The process described was invented by Mr. Dax, of Duns, in Hungary, and is thus described by Mr. Semlitsch:—

"For our purpose we need, first of all, a common cylindrical wire gauze queen cage, fastened securely to the middle of a piece of board ¼ inch thick, and having a ⅜ inch hole through its centre. This board must be sufficiently large to cover the hole in the top of the hive. A second similar board serves to have a queen cell attached to its under side with melted wax, and is laid on the first mentioned board, with the queen cell passing through the ⅜ inch hole—thus closing the queen cage. Next we need a tin plate six or seven inches square perforated with numerous small holes, so small that a worker bee cannot pass through. And finally, we need a four-sided case of wire gauze or a glass cylinder, six inches wide and six or seven inches high, open at top and bottom, and having within, on one side, three or four inches from the bottom, a wooden peg or spear on which a small piece of honey comb may be suspended. These are all the requisite materials.

"When we are having queens reared, it is important that we should note the day on which the cells are sealed. On the second day thereafter cut out a queen cell, attach it by means of melted wax to the under side of the second board above described. Then, inverting the board, pass the cell through the ⅜ inch hole of the first mentioned board, into the queen cage, so placing the board that the cell shall be freely suspended in the cage, with room all around and below, for the young queen to emerge when mature. With the second board then placed on the first, the queen cage is perfectly closed. Now open the hole in the top of the hive, and place the board on it, with the attached queen cage passing down into the hive as far as the board to which it is fastened will permit. Close all crevices tightly, and cover the whole with a piece of blanket doubled and securely fastened. By lifting the blanket and raising the upper board to which the queen cell is attached we may at any time ascertain whether the queen has emerged or not. On finding that she has left the cell, we wait four or five days longer, or more precisely, from after the third till the first fine, warm and favourable day that occurs, such as young queens themselves select for their bridal excursions. On such a day, we lift out the queen cage with all its adhering bees, cover the hole in the top of the hive with the perforated tin plate, and set the wire gauze cage or glass cylinder on it; thrust into it the adhering bees from the queen cage, liberate the queen, let her pass down among the bees, and cover the top of the case or cylinder. There ought to be somewhat more than a hundred bees in the cluster. Should there not be so many, draw back the tin plate gently and let an additional number of workers pass up. Now suspend a piece of honey comb on the peg or spear, cover the case or cylinder, and place it in a dark chamber. At any time between eleven o'clock in the forenoon and three o'clock in the afternoon, a selected drone may be introduced, light partially admitted, and fertilization will soon follow. Should it not take place on the first day, the experiment must be repeated on the next, when it is almost sure to occur. Mr. Dax assures me that he had frequently used the process, and only on two or three occasions had he found it necessary to introduce a second drone, and was then invariably successful. 'Make the trial,' said he, 'it will not fail.'

"Apart from the undoubted credibility of Mr. Dax, other strong reasons lead us to presume that a successful result would follow a properly made experiment. Why does not fertilization take place within the hive itself? Evidently because in the crowded condition of a colony it could not be effected without interference, leading to commotion which might endanger the life of the queen. This being so, natural instinct has provided that, for this purpose, the queen shall leave her hive. Even should the bee-keeper undertake to interpose in the ordinary manner, by catching, confining and removing the queen, she would still be filled with alarm, and all her efforts would be directed to effect her escape and return to her hive—excitement and anxiety dispelling every other passion or natural impulse. Whether a queen thus removed be liberated in a roomy chamber and permitted to fly among workers and selected drones, or allowed to fly in the open air, restrained only by a silken string, the desired result will rarely be attained. But by the method employed by Mr. Dax, the queen becomes neither alarmed nor excited, for she is born in a state of confinement; and when permitted to mingle with a limited number of workers, she feels herself free and companionable, yielding readily to her natural impulse to provide for the growth of the small colony. If now a mature drone be introduced, fertilization will almost certainly follow, because, from the small number of workers present, clustered too, for the most part on the inserted honey comb, no interference or disturbance need be apprehended. Such are the grounds which induce me confidently to expect a successful result.

"Next spring I shall prepare for the hives having a honey chamber in the top, a division board 1¼ inch thick, with a suitable centre hole, substituting it for the ordinary top division board, for the purpose of experiment. If I should then also separate the honey chamber by means of glazed division frame, I may possibly be able to dispense with the wire gauze case or glass cylinder. But in such case the tin plate must have precisely the length of the common top division boards, and take the place of the division board with the central hole."

The above process, it will be seen, is very similar to the method already described in this journal. We have experimented with one queen, and succeeded in getting her artificially impregnated.

ED.

Profits of Bee-Keeping.

To the Editor.

SIR,—I commenced last spring with one hive of Italian bees from the stock of J. H. Thomas, Brooklin, Ont., in one of his patent hives.

I have now ten splendid swarms, all of them being almost too full of bees to work with profit, besides a good deal of surplus honey. I had another swarm last week, but returned it to the hive, as the season is so far advanced.

All the bees in this locality have done very well this season, but none so well as mine; and the only reason is that mine are Italians, while the others are the common black bees. Does it not pay to keep Italian bees?

JAMES LOCKIE.

Listowel, Aug. 2nd, 1870.

Bees should have a liberal allowance of air during all extremely hot weather, and if the stocks are strong the entrance blocks may be entirely removed.—LANGSTROTH.

All the choicest spare honey should be removed from the hives, before the delicate whiteness of the combs becomes soiled by the travel of the bees, or the purity of the honey is impaired by an inferior article gathered later in the season.—LANGSTROTH.

It would appear from the following extract from Purchas that bees have been from time immemorial in favour of the present fashion of cropping the hair. This quaint writer observes:—"Bees are much offended with long hair on head or face. Let such, therefore, as must be often among them, wear short hair, or be well covered, on peril of stinging."

HONEY FROM LINDEN.—Bees are doing finely in this locality. The present prospects indicate a grand yield of surplus at the end of the harvest. The weather is fine and honey abundant. The Linden is in full bloom at this date, being some twelve days in advance of last year. To give the readers of the *Journal* some idea, I have taken notes of the following stands, four in number:—Weight of each in the morning, 66, 74, 78, 70 pounds; in the evening, same day, standing thus, 85, 71, 72, 76 pounds, making the sum total twenty-six pounds in one day. These were not No. 1 full colonies, all having been swarmed, or brood taken from. It would not be too great a stretch of the imagination to say that good colonies can double the above figures. Is this not enough to stimulate the cultivation of this favourite tree? Already I see a movement in that direction.—*Cor. American Bee Journal.*

Correspondence.

Crops—Irrigation.

To the Editor.

SIR,—At this date we are still busy harvesting hay. Fall grain and barley are nearly all housed and safe. Hay in this vicinity is rather light, especially clover, a great deal of which was winter-killed or ice-smothered, so that our main reliance is the surplus crop of last season, and the hardier varieties of grasses that survived. Timothy is very good in some localities, especially near the margin of creeks or rivers, made rich and moist by the spring inundations. The protracted drought of the spring affected the hay and barley materially. "Store is no sore," and those who were wise enough to keep their hay will profit thereby.

Barley does not yield as largely as last season; it is short, and ripened very unevenly, some being quite green while the rest around was quite ripe; this is especially the case on clayey soils. Barley needs generous culture. Farmers are too anxious about the quantity sown, and not careful enough about the quality. These heavy clay soils need a great deal of moisture and stirring to render them fit for spring crops. It would be better and surer on such soils to raise fall grain, which would receive all the benefit of fall, winter, and spring moisture, and would become rooted so strongly that the drought would have little effect upon it.

Very little fall grain has been grown in this township this year. Those who have held to fall wheat-growing are well repaid, both in yield and quality. The Diehl and Treadwell varieties especially have done well. We should grow more. Oats are an abundant crop. Spring wheat promises well. Peas are very good and well podded.

The subject of irrigation has engaged my mind of late. Can we not to some extent mitigate the severity of our periodical droughts by some artificial means? 1st. By securing the water that comes down our hill-sides and through our fields, and forming reservoirs from which it might be dispensed in time of need to the thirsty ground, through channels or pipes. 2nd. By using waggons or carts similar to water carts, with broad tires, and otherwise adapted to the purpose. 3rd. By the use of steam power and hose, one of which might serve for two or three concessions. 4th. By applying such manures to the soil as absorb moisture, and ploughing under green crops. 5th. Diverting the channels of creeks, and making them spread over a large area of land. In Eastern lands they seem to appreciate the gifts of inundations better than we. True, manual labour is cheaper; but here, with all the aids of machinery, much might be done to economize the water so lavishly bestowed upon us. Would not hydraulic rams be of service in this respect? I would like to hear more on this subject.

JOHN S. BOUTILLIER.

Sidney, Aug. 9, 1870.

The Potato Beetle.

To the Editor.

SIR,—You seem to be desirous of having the opinions of those who have suffered from the Colorado potato beetle.

I have grown about eight acres of potatoes this year—six acres of Garnet Chilis and two of Early Molters, a potato much grown about London, and in productiveness, earliness, and flavour, far surpassing the much vaunted Early Rose.

The beetle settled upon the Molters first about the second week in June, and whilst the tops of this potato were green, no beetles touched the Chilis, but when the Molters were exhausted they attacked the Chilis. I do not intend to say anything about the beetle that will encroach on the work of the entomologist: but I think that as yet there has been no practical mode of dealing with these pests made known to us. I look upon all the suggestions as to the mode of poisoning them as utterly useless, when potatoes are grown on a tolerably large acreage. In a small garden patch they may be sprinkled with hellebore, or shaken off and trodden on, or troubled with Paris green, but not when they are grown by the acre. The cost of doing any one of these things would swallow the potatoes, for they would require sprinkling every other day. This pest is not a caterpillar only; it has wings, and the beetles are marching westward at a considerable rate. They are constantly recruited by fresh arrivals. If the main army is destroyed, the reserve takes its place, and the militia succeeds, and the *levy en masse* comes after the militia, so that such modes of destruction are altogether impracticable to the farmer, though the cottage gardener with children may succeed in effecting their destruction.

What, then, will succeed? In difficulties of this nature it is, after all, to the practical farmer that we must look for an effectual remedy. One summer's experience is only of small value, but I will tell you mine. My potatoes were planted the first week in April; they were well up by the first week in May. Having no frosts in this neighbourhood at that period of the year is, no doubt, an advantage. The result of early maturity is this—that the crop of Molters were too far advanced to be much damaged, notwithstanding the loss of the tops. The Chilis are not so good as in ordinary years, having lost the nourishment they should have received from the injury done to their tops, but they are far beyond the same potatoes grown by many of my neighbours, but not put into the ground until after mine were well up. The reason seems to me to be that the beetle in mine did not destroy the tops until after the potato was well advanced, but with my neighbours the potato was much younger, and therefore suffered more from loss of the tops. One mode, then, of cheating the beetle will be by getting the crop in early, and selecting those kinds of winter potato which mature early. Now, the Early Molter is one of these kinds—one of the earliest, and good as long as you can get it, that is, as good in the next spring as any other potato. The Chili, for a winter potato, is an exceedingly early kind, and keeps remarkably well.

I am, of course, presuming from this year's experience that this pest will not commence its devastations earlier in any other year than it has in this, which may or may not be correct. Then, as to early planting, those parts of the country where there are spring frosts may be supposed to be shut out of my remarks. I think not, however, and I should plant as early as I could get the ground ready for them, and as soon as the tops peep above ground I would cover very lightly either with the hoe or double mouldboard plough, and repeat as often as the tops appear, until all danger of frost has gone. I do that here, although there is little chance of frost. I have done it at the London Asylum farm this year to protect the young tops from frosts. I think these measures of planting early and covering over, and selecting the earliest maturing kinds, may give us good crops until this pest disappears, as all such pests do in a few years, from some cause or other which scientific men have not yet discovered. I would add frequent hoeing and scuffling between the rows, in order to worry those insects which, in one form of development or other, hide themselves in the earth.

HENRY FANDON, M.D.,
Malden Asylum.

Amherstburgh, Aug. 22, 1870.

Lucerne, Etc.

To the Editor.

SIR,—I should be glad if you or your readers would, from actual experience, give me information on the following questions:—

1. Can Lucerne or Saintfoin be depended on to stand the winter for several years?

2. Will autumn-sown tares live through the winter?

3. Can a hay crop of tares be got off in time to get buckwheat in?

4. Will clover hay chaffed and steamed keep young pigs in winter?

A SUBSCRIBER.

REPLY.—1. From a limited experience with Lucerne we believe it will endure the Canadian winter. Many years ago we saw this crop grown on sandy loam soil, and although negected in its culture there was an excellent yield the first year. It was sown about the first of May, 1832, and endured our winters, and yielded two cuttings each year for about five years. It was then destroyed to make room for a garden. The owner, a bricklayer, knew little of farming, and took no care of the young plants even the first year. It was sown broadcast with barley. Many of the stalks were four feet high, and several horses were fed during the summer from it.

2. It is very doubtful if the winter variety of tares will survive the severe cold of this climate.

3. If sown early, there would be plenty of time after the removal of the crop for one of buckwheat.

4. We should not expect that such feed alone would suffice for hogs. It is even doubtful if they would eat it, however well they may relish the fresh, young and green clover.

Mouldy Beans.

To the Editor.

SIR,—In examining to-day a bin containing beans which had been lying more than a foot in depth, I found that beneath the surface they had heated and become covered with a white mould which rubs off with the fingers, and were very musty also. They had not been stirred in the bin since winter.

Though half ashamed to confess ignorance with regard to the necessity of stirring such crops in warm weather, yet I deem it a duty to give my dear experience to my brother farmers, lest some of them lose through similar neglect.

Please mention: How can such beans be used to best advantage? Can they be fed with profit to store sheep, or to sheep for breeding; if so, how should they be prepared? Is it profitable to raise beans for feeding on clay soils?

THOMAS SHAW.

Woodburn, July 29th, 1870.

DOUBLE IMPREGNATION.—A correspondent from Troy asks "whether it is possible for a sow to breed from two boars at the same litter?" Such an occurrence is certainly possible, and is not inconsistent with physiological laws. Well authenticated cases of a parallel character have been recorded as having taken place among animals where such instances must be rare, and with some animals the case can hardly be considered exceptional.

CALF FEED.—In reply to the enquiries of T. N. Sylvan, respecting feeding grain to his calves, we would say that a mixture of grain feed, such as he proposes, is very serviceable for growing as well as fattening stock. For the sake of obtaining variety, which is very desirable in feeding, by keeping up the appetite and strengthening the digestive powers, it would be well to alternate the various grains, rather than mix them all together at one time. From four to six pounds of grain daily would be sufficient for the calves, but they must have, in addition, a fair allowance of hay or straw, chopped and steamed, if possible. A proportion of roots also will, besides preventing constipation, prove very useful in the absence of green food.

SUBSOIL PLOUGH.—J. Morley, of Thorold, and W. Walker, London, manufacture them.

WINTER BARLEY.—Can any of our readers give information of recent experience with winter barley in Ontario?

CANARY GRASS.—The specimen of grass sent for identification by J. Y., Springfield, is Canary Grass (*Phalaris canariensis*), a variety which furnishes the well-known canary seed.

WILD RASPBERRY PATCH.—If enclosed, there should be no difficulty in dealing with trespassers; but if unenclosed, the enforcement of the owner's legal right might cost more trouble than the fruit was worth.

SNAILS.—Mr. F. Fowler, of Haysville, asks or a remedy for snails in the garden, having tried a number of applications in vain.—Snails can not travel in chaff, and if this be spread in a circle around the plants an inch deep, they will be found in the chaff with it adhering to their bodies. Air-slaked lime, sprinkled on theplants when they are wet, with dew is useful.

ALSIKE CLOVER.—A subscriber from Mount Forest writes:—"Would it harm Alsike clover, that was sown last spring, where there is a large percentage of red clover that was seeded in with the dung the previous year, to cut it now? There is quite a heavy crop, and I think it would smother with the weight of snow in winter." A very heavy crop, such as you describe, mixed with some of last year's seeding, might be cut now without damage, though under ordinary circumstances it would be best to let it alone till next year.

GERMINATION OF WHITE CLOVER.—T. N. is puzzled about the spontaneous appearance of white clover in his meadow several years after the first seeding. White clover is very capricious, so to speak, in germination. When purposely seeded, it will sometimes not come up for several years, and may then make its appearance in patches. It also appears spontaneously in blue-grass and other pastures, and increases in some years with extraordinary profusion. Wherever it springs up the germs must, of course, have been already in the soil, or been mixed with the other seeds used in artificial seeding. It is a kind of seed that will remain dormant, without losing its vitality, for almost an indefinite period.

WHITEWASH.—"Cultivateur" asks, "What is the best mixture for a whitewash for outbuildings?" The following is a good receipt for the purpose:—Slake half a bushel of lime with boiling water, when thoroughly slaked, add more water, two pounds of sulphate of zinc and one of common salt. Colour can be obtained by the addition of three pounds of yellow ochre for a cream tint; for fawn colour add four pounds of umber, one pound Indian red, and one pound of lampblack; for stone colour, use four pounds of raw umber and two of lampblack, and for lead colour add lampblack only.

The New Cattle Disease.

The following reply from Mr. Atkin the Secretary of the North Middlesex Agricultural Society, to a letter of enquiry from Mr. Buckland, Secretary of the Bureau of Agriculture, may be taken as a sample of others on the same subject, all giving uniform testimony of the nature of the disease.

Mr. Atkinson says:—"At a meeting of Directors of the North Middlesex Ag. Society, held at Ailsa Craig on the 29th inst., your communication of the 22nd inst., relative to "Cattle Disease," was read, when it was unanimously concluded by the Board, then in session, that there is at present in this section of the province no appearance whatever of a cattle disease; and that the so-called "cattle disease," or "plague," is nothing more or less than a grievous annoyance caused to the cattle by unusual swarms of flies. These flies, in low and marshy places, so afflict a beast as to cause in a few instances considerable swelling in the legs.

The appliance of almost any simple embrocation will not only prove a cure, but a sure preventative against the flies."

Advertisements for the "Canada Farmer" must be sent in to the office of publication early, and in order to secure their insertion in the forthcoming number, must in no case be later than the 7th of the month.

The Canada Farmer.

TORONTO, CANADA, SEPT. 15, 1870.

Harvest and Weather Notes.

Though the threshing-machine is the true measure of our cereal crops, and estimates formed from standing grain or the harvest field are often erroneous, yet the time has now arrived when a tolerably correct opinion can be formed of the produce of the year.

The accounts that reach us from outside our own Province are of a very varied character, but not on the whole discouraging. In Great Britain, notwithstanding the long-continued and extreme drought, the most severe with which the country has been visited for a great number of years, the returns are far from unfavourable. A report published in the *Mark Lane Express* and other British journals states that the harvest weather has been remarkably fine, and the quality of the grain for the most part excellent. With regard to wheat, the yield on light soils has been below the average, but that on the heavier lands has turned out well, and of superior quality. The barley crop is said to be poor, and about twenty per cent. under average. Oats are set down as fifteen per cent. under average. Beans have proved a comparative failure. Peas will be up to the average. The potato crop is reported to be looking well and free from disease. Other root crops are also promising. Hay has suffered seriously, and cannot be other than very short, though in the north of England and Scotland a much better account is given of this staple fodder.

Very little can be said of the Continental harvest. From a large portion of Europe, war news absorb every other interest. The fields that had suffered from the drought are rendered yet more fruitless by the devastations of opposing hosts. In the countries not implicated in the terrible contest, the season has not been unfavourable.

The reports from the United States represent a falling off in the yield of wheat, fair crops of other grain, and an abundant yield of Indian corn.

Within our own borders, the character of the season affords abundant grounds for thankfulness. Though in some districts short crops and comparative failures are reported, yet for the most part the yield of all field produce will be good. In some localities, the heavy storms of wind and frequent showers have seriously damaged the wheat, but the harvest returns of the country, taken as a whole, will probably come nearly up to the average. Root crops everywhere look well. The prices of farm produce, there is every reason to believe, will be good. Hay will, no doubt, be dear, not only because the crop will be somewhat short and damaged, but there will probably be an extra demand for export.

The accounts from the sister Province of Quebec are less cheering. Vegetation has suffered severely from the protracted drought, and the amount of damage inflicted by the forest fires has added a serious element to the tale of losses. The generous aid of the more prosperous dwellers in Ontario will be required, and, no doubt, be cheerfully rendered, to relieve, in a measure, the sufferers from these accumulated disasters.

The character of the weather during the past month may be gathered from the following notes, taken from the records of the Toronto Observatory:—

The mean temperature of the month was 67° 07, being warmer than the average of the past 30 years, by 1° 07, and warmer than that of August, 1869, by 3° 43. The highest temperature was 84° on the first, and the lowest 40° on the 27th. The warmest day was the 8th, the mean temperature of which was 73° 1, and the coldest day the 26th, with a mean temperature of 54° 8. The amount of rain-fall was 3.422 inches, being slightly (0,407) above the average, but below that of the corresponding month of last year by 1.688 inches. Rain fell on fourteen days, and eight thunder-storms occurred in this neighbourhood. During the thunder-

storm on the 5th, .60 inches of rain fell in 15 minutes, and .86 inches in 45 minutes. The sky has been perfectly clear only on seven days, totally clouded on four days, and partially so on twenty days. The prevailing winds have been westerly, with some easterly, and very little from either north or south.

A Day's Labour.

The "labour question," as it is somewhat vaguely called, has of late given rise to much controversy and some questionable legislation. Among other matters to be decided, the term of a day's labour has been warmly discussed, and while the limitation to ten hours or even eight hours has each found advocates, not a few are opposed to any restriction in the case whatever, believing that perfect freedom should be permitted on all hands, and that thus a right adjustment will be best secured. Yet that such freedom has been abused, and always will be, has been clearly demonstrated by experience. In the case of young children, for instance, it has been found necessary to protect the helpless class against the greed and cruelty of those who ought to be their most humane and tender guardians. When labour also is overabundant, and employers have from this fact a tyrannical power, it may be necessary to interfere on behalf of the over-tasked working man. But in this country the preponderance is all on the other side, and the tyranny is felt to be exercised by the labourers rather than by the men who require their services. This is the case more particularly in the agricultural community, among whom the supply of labour is certainly much below the demand, and the legitimate profits of farming are thereby often very unreasonably reduced. The "hire of the labourer" too often in Canada swallows up a most disproportionate share of the income of the farm.

Let it not be supposed that we would justify excessive demands on the labourer's powers or time, or that we are advocates for anything like unremitted toil. We are firm believers in the benefit, nay the absolute necessity, of relaxation, rest, and a fair amount of thorough recreation. But there are peculiarites about the farmer's calling that render the rigid application of any fixed rules in respect to working hours, such as might be quite compatible with the requirements of a factory or a store, altogether impracticable on the farm. The season during which the farmer has to complete all the operations of husbandry is very short, and often precarious; seed-time and harvest especially are periods of unavoidable hurry, during which the loss of a single day, or even of a few hours, may seriously affect the crop. A few hours may suffice to complete the seeding of a field just before a threatening storm or accession of wet weather, which, while it puts a stop to further work, may be just what was required for giving the seed an early start, and securing for that particular crop most important advantages, such as immunity from insect damage, strength to resist early frosts, or a gain of weeks, perhaps, in the time of maturity. And again, during harvest there are occasions continually occurring when it is of the utmost consequence to push on the work of in-gathering and securing under shelter the produce of the field with all possible energy and despatch, and it now and then becomes necessary to use every minute of daylight, or even to prolong the day's labour under the benign aid of the traditional "harvest moon." Such extreme occasions are, of course, exceptional, but when they do occur they are imperative, and no farmer would consent to forego the advantage of the extra hours under an arbitrary regulation to "quit work" at a certain time. The loss of a valuable crop may result from a few lost hours.

Taking one day with another, moreover the farm labourer has his compensations for these extra hours of work. The man who is hired by the year can set against the long days of summer, the very short days and often interrupted work of winter; and he who is engaged especially for harvest receives extraordinary and often exorbitant wages, which certainly should cover a little additional demand on his exertions. Wet seasons and storms will also often break into the regular course of work, and make the day's labour lighter, and often in effect shorter, without any corresponding deduction in the high rate of remuneration received. The men most likely to rebel against these unavoidable extra tasks are not the regular farm labourers, who have been brought up in the country and know the exigencies of farm life, but the occasional "city hands" who have been tempted by harvest wages to "hire out in the country" during the busy season. Such men often give no end of trouble, and farmers should resolutely set their faces against their unreasonable stipulations. Better dispense with their services altogether, than submit to their dictation; their help is often dear at any price.

There is, of course, another side to this question; and while the peculiarities of farm work render some latitude necessary in the hours of labour, there must on every well ordered farm be a generally regular system of daily work, and there need not be any immoderate share of toil. There is no fear, under existing circumstances, that Canadian "hands" will be overtasked. So long as the number and proportion of employers and employed continue as they are, there will be plenty of choice for the latter, and the unreasonable master will soon find himself a marked and avoided man, unable to obtain help when he most needs it; while his less selfish and exacting neighbour will be cheerfully and well served. A kindly and considerate treatment of farm hands, or indeed any class of labourers, will generally enlist them heartily in their employer's service, and establish that mutual interest and good understanding between the contracting parties, without which neither farming nor any other business can be pleasantly and prosperously conducted.

Agricultural Premiums.

The signal advantage to be derived from competition, and the immense aid to progress which the system of agricultural exhibitions and prizes has developed, do not require, in the present day, to be enforced by illustration or argument; but it would be unreasonable to expect that we had reached perfection, and that there was no room for improvement. Indeed, it is now generally acknowledged that the existing class of premiums needs some additions, if not substitutions. There are, for instance, some departments in which the specimens that gain prizes are of comparatively small value. Among live stock, a single excellent animal is of intrinsic worth for breeding purposes, or some other desirable object, and deservedly obtains distinction; but among field or garden products an individual or very limited sample may be raised at a disproportionate cost, and may afford a very inadequate idea of the general character of the crop, or the good management of the producer. Prodigious Swedes are not unfrequently culled from a field of very inferior growth, and mammoth fruits are sometimes merely the pets of a neglected garden, and like the spoiled children of a family, very unfit subjects of reward.

It is with such classes of premiums that there is need of some change, and additions of the character required are being introduced both in Great Britain and in the United States, with very encouraging results. To some of these improvements it may be well briefly to direct the attention of those who have the management of our agricultural exhibitions.

The actual trial of implements with the practical testing of their work is becoming each year more extensively adopted as an essential element in competition. Indeed, there is no other fair indication of merit, and without such test awards are comparatively worthless as a guide to farmers. This feature in the exhibitions of the Royal Society of Great Britain is one of the most noticeable of modern innovations. The trials are very thoroughly and systematically conducted, considerable time being devoted to the purpose, and only a limited class of implements being submitted to examination in each year, so that all may in rotation be fully tested. The New York State Agricultural Society has also set a good example in this same direction, and there can be no doubt that great improvements in agricultural machinery will result from such a system.

Another commendable novelty in this year's prize list of the Royal Society has excited much interest, namely, the award of premiums for the best managed farms. The

competition was confined to the County of Oxford, in which the show was held. The first prize, a silver cup, value £100, was awarded to Mrs. Millington, of Ash Grove Farm, Ardley, Bicester; the second, of £50, to John Treadwell, of Upper Minchenden; besides commendations for other farms, and, in one case, the recommendation of a third prize. The farm of Mrs. Millington, we are told, was by no means a model farm, in the general acceptation of the phrase, with extensive buildings, high-bred stock, steam cultivation, and all the appliances of modern science, but was an ordinary tenant farm, judiciously managed in accordance with a tenant's limited capital, and with a primary view to profit. No doubt the decision of the judges will be sharply criticised, and in future some more specific regulations may be found necessary to determine the awards; but the principle is a sound one, and the example will be followed up by other societies on both sides of the Atlantic.

As a further excellent illustration of this subject the prize list of the New York State Agricultural Society for their forthcoming exhibition may be cited, and is deserving of general imitation. An enumeration of some of the novel objects for which premiums are offered, will show the practical character of the competition, and may suggest valuable hints to some of our own societies. Among the special features to which we allude, are premiums for essays and experiments; for the best specimen of farm book-keeping; the best examples of underdraining, of reclaiming swamp lands, of irrigation; the best experiments with wheat, liquid manure, feeding stock, etc. Besides these, special prizes are offered for tree planting, for crops, for the best vineyard, the best dairy, and the best managed farms. These are all objects of prime importance, and bringing them into prominence by public competition cannot fail to diffuse much valuable information, to stir up a rivalry of the most practical character, and to lead to improved methods of husbandry.

We earnestly commend the subject to the consideration of agricultural societies in our own Dominion.

A Natural Method of Salmon and Trout Raising.

A strict system of preserving fish, similar to the practice adopted with game, was formerly the only method in operation for preventing the gradual extermination of many valuable species; but, in addition to legal restrictions against wholesale or unseasonable slaughter, a far more efficient plan has, within a comparatively recent period, been successfully introduced, not only to arrest the decimation, but to re-stock depopulated waters, and multiply their finny inhabitants almost indefinitely by artificial breeding. This system of pisciculture has been chiefly applied to salmon and trout, as being the most valuable, and perhaps the most easily raised in this way. The subject has occupied considerable attention, and been practically tested on an extensive scale in Europe, and quite recently has begun to attract the notice which its importance deserves, both in the United States and in Canada. The method most generally practised is that of trapping and catching the adult fish during the spawning season, pressing out the ova of the female, and impregnating them with the milt of the male similarly extracted by pressure. To this method objections have been raised as being unnatural and violent, inflicting more or less injury on the parent fish, and from the liability of ejecting immature ova, as well as subsequent artificial treatment, producing a degenerate offspring.

We are not prepared to discuss the force of these objections; but admitting that bungling performances in unskilful hands may give colour to them, and, moreover, that the attention of some prominent pisciculturists has been too much devoted to the lucrative trade of selling ova and very young fish, rather than raising them to maturity, still the very marked success that has attended carefully conducted operations in artificial fish hatching furnishes strong grounds for believing the system to be sound, and the results most advantageous and important. Our object, however, at present, is to direct attention to a simpler and more natural method, which the objectors to the artificial system would substitute for attaining the same object. The matter has been recently brought into public notice by Mr. W. H. Furman, of Maspeth, Queen's County, N. Y., who has devoted much patient investigation to the subject, has tried and at length abandoned the purely artificial method, and proposes instead one which he claims is not only more consonant with nature, but more satisfactory in its results. He has arrived at his conclusions by carefully studying the habits of the fish, and aiming to secure the conditions which are naturally essential or desirable. He observes that the spawning beds must be clean and gravelly, having the water of a certain even temperature, somewhat warmer than the average temperature of the stream. The absence of a strong current, and comparative darkness, are also important; such situations are usually found over springs in the bed of the stream. In the plan which Mr. Furman advocates, he combines all these conditions, and imitates nature as closely as possible.

The main feature of his method is what he calls a shanty, which is simply a commodious, healthy and safe spawning ground. The bottom or bed is composed of a layer of clean gravel from four to eight inches thick. Through this bed, springs, natural or artificial, percolate from underneath. The structure is covered, so as to protect the eggs from the injurious effects of sunlight, and is kept free from eels, frogs, water-snakes, water-rats, muskrats, and other enemies of the young trout.

The shanty having been set in order, the trout are left to find their way to it by natural instinct, which is always sufficient. They flock to the spot at spawning time and deposit their eggs on the gravelly bottom. The eggs immediately sink in the gravel beyond the reach of the male trout or other interlopers. As soon as the eggs begin to hatch, the trout are all driven from the shanty, a screen is put at its mouth to prevent their return, and the young fish are left in absolute safety. They are kept in the shanty, and fed there, till they become old and active enough to be turned out into a pond to take their chance in wider and deeper waters.

The method certainly seems feasible, and we commend a trial of it to those who have suitable streams on their farms; and have no doubt that with comparatively little trouble they may obtain an acceptable variety of wholesome food for their own tables, as well as increase the profits of their husbandry by supplying the market with the produce of the waters in addition to the fruits of the earth.

Quebec Provincial Exhibition.

The Council of Agriculture for the Province of Quebec have issued their regulations and prize list for the forthcoming exhibition, to be held in Montreal during the third week in September, from the 13th to the 16th inclusive. The occasion will, no doubt, be one of great interest, and the more so from its occurring less frequently than our own exhibition, being a biennial instead of an annual affair. Extensive preparations in buildings and grounds are in progress, and the Council, under the energetic leadership of the President, H. G. Joly, Esq., and M. H. Cochrane, Esq., the Vice-President, are bestirring themselves to render the exhibition of this year one that shall eclipse its predecessors. The presence of Mr. Cochrane's stock alone would render the show peculiarly attractive, and repay the visitor for the trouble of a long journey. Others also in the sister Province have been stimulated by his example, and have recently made valuable importations from Great Britain, and these will, no doubt, be on view as competitors for distinction. The time fixed is early, and has been so arranged as not to interfere either with the New York State Fair, or our own Provincial Exhibition, and the occasion will, doubtless, draw a large crowd to Montreal. The Council, we are informed, will make arrangements with steamboat and railroad proprietors for carrying passengers and articles at reduced rates, and also with the Customs Department for the free entry into the Province of articles for exhibition.

The competition is open to all; and intending exhibitors are notified that all entries for live stock must be made on printed forms supplied by the Secretary, Mr. Leclerc, of Montreal, on or before Saturday, August 27th,

two weeks preceding the show. Entries in other classes may be made up to Saturday, September 3rd, one week preceding the show, after which date no entries will be received.

In the list of premiums—a liberal one mounting up to nearly $9,000, more than $5,000 of which are offered for the live stock department—there are some special features. The Prince of Wales Prize of $50 is offered for the best herd of cattle, consisting of one bull and five cows, no specification, however, being made as to breed. The Council also offer a second prize of $50 for the herd next in merit. The classification of horses is somewhat peculiar, as giving prominence to special breeds—Clydes, Percherons, Normandy, Suffolk, and pure Canadian—for each of which three prizes are offered. A nnmber of other varieties are also embraced in this olass, and among them—last and least—Shetland ponies are included. In cattle also a diminutive breed, but one of world-wide celebrity, the Alderney, comes in for a share of honours. At the last exhibition, two years ago, there was a beautiful herd of these animals shown that had been recently imported from England, and selected chiefly from the Prince Consort's farm

The absence of any horticultural department challenges comment; but is no donbt accounted for by the fact of the Montreal Horticultural Society taking this branch under their special charge. They will assuredly hold their show simultaneously with the Agricultural and Industrial Exhibition of the Province, and thns supply what would otherwise be a grave deficiency. We trust the efforts of the Council will be amply rewarded, and that the forthcoming competition will be at once an evidence of progress, and an incentive to yet further advancement in agriculture and the industrial arts.

Encouraging the Importation of Thoroughbred Stock.

The Provincial Association have, during the present and past years, adopted the following resolution, which has been published in their prize liat, appended to class 23 :—

"With a view of encoursging largely the importation of improved stock, the exhibitor of any male animal imported into this Province from Great Britain or any foreign country, and not previouly exhibited, which ahall take the first prize in any of the above classes, will be paid three times the amount of the premium offered in the list; the exhibitor of any female animal imported and not previously exhibited, taking the first prize, will be paid double the amount offered. Such animals to be the *bona fide* property of persons residing in Ontario (Upper Canada) and to be retained in the Province for at least twelve months after obtaining the prize. Satisfactory evidence must have been given at the time of making the entry that the animal has been imported, and not previouly exhibited at any Ontario Provincial Show, or the increased prize will not be paid."

This, one would think, was clearly enough expressed, and yet there are persons who ask what it means, and contend that it violates the principle of open competition, restricting it to the Province of Ontario; whereas no one outside is precluded from obtaining his prize should he gain one, but he is not entitled to the *extra* premium for importation, unless the animal is retained in the country for a certain period. This is certainly only a reasenable stipulation, for it could not be expected that Ontario should offer any special inducements or rewards for importations into New York or other States for the exclusive benefit of those countries.

There is certainly another rule, the 12th, which will practically exclude exhibitors of male animals over one year old, in the horse and cattle classes, from taking a prize, unless they diapose of them to a resident, or allow them to serve in Ontario for one year after the Exhibition closes. This also we think only just and reasonsble. The only improvement we would suggest is the offer of special prizes designed to encourage the importation into the Province of improved stock, even in cases where other imported animals may take precedence in the awards. Newly-imported animals, provided they are commended by the judges as being of good quality and real value for the improvement of our live stock, might be allowed an extra premium, whether they gained a prize in their reapective classes or not. The importation of a really valuable animal deserves some such recognition and reward.

Galt Sheep Fair and Ram Sale.

A number of enterprising gentlemen, of the counties of Waterloo and Wellington, have determined to have an annual fair at Galt, on a similar plan to the well-known Kelso Tup Sale of Scotland. The first fair will be held on the 14th October next, when it is hoped the inauguratiou will be well attended by all the prominent sheep-breeders of Ontario. There is expected to be a large number of buyers from the United States, as the fair is extensively advertised in U. S. agricultural journals. It will be optional with breeders to sell by auction or private sale, though the former mode will have the preference with most of them. Galt is situated on a branch line of the Great Western Railway, and is easily accessible from all points on the G. T. R. via Guelph, and G. W. R. via Harrisburg. The notice of the fair will be found in our advertising columns.

NATIONAL LIVE STOCK JOURNAL.—We have received the first number of this new periodical published at Chicago, and edited by J. P. Reynolds. It is a handsome, well printed quarto magazine of 32 pages, containing much valuable information. A long list of its special correspondents and contributors includes the names of some of the leading stock-breeders and agricultural authorities of the Western States. It is published monthly, at three dollars per annum.

KELSO RAM SALE.—The annual autumn show of sheep and ram sale has been announced to take place at Kelso, Scotland, on the 9th of September. We expect shortly to receive full dctails.

MORETON LODGE COTSWOLDS.—We direct the attention of sheep-breeders to the advertisement in our present issue of Mr. Stone's Cotswold sheep sale, to take place at Moreton Lodge on the 21st of this month. We are informed that the sheep are all closely shorn, and in good breeding condition.

SALE OF YOUNG THOROUGHBRED SHORTHORN BULLS.—It will be seen by our advertising columns that Hon. D. Chriatie offers for sale a number of his young Short-horn bulls. These choice animals are in excellent condition, and show unmiatakable evidence of the Booth blood they inherit through their sire, Knight of St. George.

IMPORTATION OF THOROUGHBRED STOCK.—We are informed that George Isaac, Esq., of the Haldimand Plains, Northumberland County, has made a second importation of thorough-bred Short-horns from Scotland. This importation consists of two bulls and seven heifers, three of the heifers being two-year olds and the others yearlings. They were selected by Mr. George Isaac's son, from the well-known herd of Mr. Sylvester Campbell, Aberdeenshire. It is gratifying to observe that so many Canadian stock-breeders are giving evidence of their enterprising spirit by making valuable importations from Great Britain.

FOUR-HORSE POWER THRESHING MACHINE.—Farmers have often felt the want of a convenient threaher, of smaller size than the ordinary travelling machine, and the price of which would bring it within the reach of men of ordinary means, so that it might be included among the regular implements of the farm, and be at hand when it was required, thus obviating the necessity, in busy and pressing seasons, of waiting the convenience of others. Such a private machine could also be worked by fewer hands, and at much less cost than the ordinary thresher, a consideration of no small consequence to the farmer himself, and to his good wife, on whom a large share of the extra toil of threshing days devolves A machine of this kind has been now some time before the public, and has each year gained in favour. We believe that the "Little Giant Thresher," manufactured by Mr. James Sharman, of Stratford, and advertised in the present issue, is thoroughly reliable, and possesses all the advantages which the maker claims for it. It is of moderate price, can be worked with four or six horses, but is preferred by many who have used it to the larger machines. One of its chief excellencies, we underatand, is that it threshes clean and without waste. It will be on view at the Provincial Exhibition.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Fruit Growers' Association of Ontario.

REPORT FOR 1869.

We lay before our readers another extract from this valuable report, containing the information given concerning fruit-growing in that part of the Province known as the Lake Ontario section, East Division, embracing the counties of Frontenac, Addington and Lennox, Hastings, Prince Edward, Northumberland, Durham, Ontario and York.

APPLES—The following apples are recommended in the order named below, as most suitable to be planted, namely, Early Harvest, Fameuse or Snow-apple, Northern Spy, Rhode Island Greening, American Golden Russet, St. Lawrence, Red Astracan, Spitzenburgh, Baldwin, Talman Sweet, Twenty-Ounce Apple, or Cayuga Redstreak; King of Tompkins County, Early Strawberry, Golden Sweet, Ribston Pippin, Gravenstein, Sweet Bough, Duchess of Oldenburgh, Roxbnry Rnsset, Wagener, Alexander, Fall Pippin, Swaar, Kentish Fill Basket, Bellflower, Summer Qneen, Seek-no-Further, Cabashea, Pomme Grise, Keswick Codlin, Winesap, Vandevere, Nonsuch.

The following thirteen varieties were most numerously recommended in the order given, as profitable for market, namely, Northern Spy, American Golden Russet, Rhode Island Greening, Fameuse or Snow-apple, Early Harvest, Spitzenburgh, Red Astracan, Baldwin, St. Lawrence, Talman Sweet, Twenty-ounce Apple, Duchess of Oldenburgh, Gravenstein.

The following ten varieties are the most nnmerously named in the order given below, as being the most hardy, namely, Northern Spy, American Golden Russet, Fameuse, Red Astracan, St. Lawrence, Talman Sweet, Early Harvest, Rhode Island Greening, Ribston Pippin, and Duchess of Oldenburgh.

The following are mentioned as being tender, especially when planted inland, remote from the influence of the lake, namely, Baldwin, Esopus, Spitzenburgh, Sweet Bough, Fall Pippin, Rhode Island Greening, Bellflower, Early Harvest, Cabashea, Colvert, Hawley, and Jersey Sweet.

The apple trees are considerably infested with the borer. Some complaint is made also of the tent caterpillar and bark louse, and one mentions the fire-blight. The fruit is somewhat affected by the codlin moth, but this insect does not seem to have, on the whole, become very troublesome.

The spring is recommended by all as the best season for transplanting, though some advise that the trees be taken up in the fall and heeled in.

DWARF TREES—Dwarf apple trees succeed well. Dwarf pear trees require some shelter, and to have the quince roots, upon which the pear is worked, protected by a mulch or covering of coarse manure spread upon the ground over the roots. Dwarf cherry trees are reported to succeed better than the standard.

PEARS.—The following varieties of pear are reported as desirable sorts to plant, namely, Flemish Beauty, Bartlett, Vicar of Winkfield, Louise Bonne de Jersey, Seckel, Buffam, Belle Lucrative, Resticzer, Howell, Beurre d'Amanlis, Glout Morceau, Passe Colmar, Swan's Orange, Osband's Summer, Sheldon, Lawrence, Winter Nelis, White Doyenne, and Jargonelle. Of these peara the Flemish Beauty is evidently the most popular; Mr. Werden says it is the best out of seventy kinds.

Many state that they do not know the names of the sorts which have proved to be too tender, but the following are mentioned by others, namely, Bartlett, Buffam, Belle Lucrative, White Doyenne, Tyson, Henry IV., Beurre Bosc, Beurre Diel, Duchess d' Angouleme, and Easter Beurre.

Mr. P. C. Dempsey says, "there are several varieties planted that appear tender when young, such as the Bartlett, Beurre Clairgeau, Doyenne du Comice, &c., still they appear to become more hardy if grown on suitable soil, well drained, unless the tree is allowed to overload. Several varieties have failed with me entirely, but I am not ready to cast them out without another trial on different soil. In testing a new variety now, I plant on different soils. My convictions are that soil and cultivation have something to do with the hardihood of a tree."

The Flemish Beauty is the most frequently named as the most profitable for market, and next to it the Bartlett, with the Vicar of Winkfield, Louise Bonne de Jersey and Duchess d'Angouleme, in the order above set down.

The most hardy varieties are Flemish Beauty and Vicar of Winkfield. With regard to these there is no difference of opinion; concerning the Buffam, White Doyenne, Tyson, Duchess d'Angouleme and Louise Bonne de Jersey there seems to be some conflict of experience.

The fire-blight prevails to a considerable extent, and mention is made of leaf-blight and frost. The slug on the leaf has done some injury.

PLUMS.—The plum trees seem to thrive well in this division. Many sorts are mentioned—the Lombard, Washington, Yellow Egg, Yellow Gage, Coe's Golden Drop, Imperial Gage, Jefferson and Duane's Purple, the most frequently.

The Huling's Superb, Smith's Orleans, Monroe, Red Magnum Bonum, Peach Plum and Victoria are the only sorts spoken of as being too tender. All plums are reported as being profitable and finding a ready sale, yet the Yellow Egg, Lombard, Yellow Gage and Duane's Purple seem to stand out the most prominently.

The curculio has evidently found his way very generally into this division, and is reported as injuring the fruit by nearly every observer. The black knot also prevails to a very greatextent. Mr. Werden says that to wash with lye and put ashes round the roots is the best remedy for the black knot.

CHERRIES.—The Morello and Duke varieties of cherry may be generally cultivated in this part of the country, and in warm, dry soils and sheltered situations some of the Heart and Bigarreau varieties, such as Elton, Napoleon Bigarreau, Black Tartarian and Knight's Early Black can be grown. Mr. Werden says he has tried twenty sorts of cherries, and feund them all too tender.

The common pie or Kentish cherry is found to bear most uniformly and abundantly, and on that account to be the most profitable market sort in this section.

There is a disease similar to the black knot on the plum, which seems to be very prevalent in this division. Mention is made of the slug on the leaf, and of the curculio as stinging the fruit, but these do not seem to be very serious. Mr. Werden complains of the climate as being the most injurious with him.

PEACH, ETC.—The peach, quince, apricot, and nectarine will not succeed in this division. Mr. James, of Napanee, however, says the qnince can be grown.

STRAWBERRIES.—Strawberries thrive well. Wilson's Albany and Triomphe de Gand are very generally named as succeeding well, and the Wilson's Albany takes the lead for market purpeses.

RASPBERRIES.—Raspberries seem to thrive well in this part of the country. In some sections the wild sorts are very abundant. The Fastelff, Brinkle's Orange, Doolittle, Philadelphia, Franconia, and Red Antwerp are mentioned as having been grown with entire success.

GOOSEBERRIES.—The Houghton seedling gooseberry has here been found not aubject to mildew, while in by far the greater part of this division the English varieties are badly injured by it. The Crownbob, Whitesmith, and Ploughboy are spoken of as heing the least affected of the English sorts. Messrs. Charles James and Charles Anderson say that there is no mildew on the fruit.

Fleur of sulphur, planting on rich clay soil, with clean cultivation and thorough pruning, are mentioned as preventivo of mildew. Mr. Chaplin says a dry soil and open place will help the same, but the boys are the best preventive; they steal them before they are large enough to mildew.

BLACKBERRIES.—The Lawton or New Rochelle blackberry has been tried in seme places, but it has been found too tender. No other sort seems to have been tried. Wild sorts grow in some parts very abundantly.

CURRANTS.—Currants of all kinds can be grown. The White Grape, Black Naples, and Cherry currants seem to he the most popular. Within a few years past the sawfly worm has been very destructive to the foliage, thereby causing the death of the bushes, but it is also said that by a little care it can be easily overcome.

GRAPES.—The following varieties of grapes have been planted—the four varieties first named by far the most extensively, namely, Delaware, Isabella, Clinton, Concord, Hartford Prolific, Iona, Allen's Hybrid, Catawba, Diana, Adirondac, Rebecca, Israella, Union Village, Creveling, Tokalen, Diana Hamburgh, Walter, Agawam or Rogers 15, Barry or Rogers 43, Lindley or Rogers 9, Massaseit or Rogers 3, Merrimack or Rogers 19, Salem or Rogers 22, Wilder or Rogers 4, and Rogers Nos. 5, 14, 28, 33,39, 40, 41, and 44, and Brown's White and Brown's Red, the two latter having originated in Brighton, the white being much like the Sweetwater.

The great majority of the replies speak of most of these varieties as doing well; one mentions the Rebecca as too tender, another says the Isabella and Catawba need protection in winter, a few say that all should be laid down and covered in winter. Mr. Werden alone says that all, except the Clinton, are too tender. The Clinton, Delaware, and Concord are frequently spoken of as being perfectly hardy.

The Delaware, Isabella, Clinton, Concord, Hartford Prolific, Allen's Hybrid and Adirondac, are mentioned as ripening their fruit every season. Mr. Dempsey says that hardy varieties like the Delaware have never been attacked by any insects or by mildew, and that he thinks the township of Ameliasburg a very favourable section for the cultivation of the vine. Mr. Thomas Brownlie says there is a small vineyard in Scarboro' of about four hundred vines, chiefly Delawares.

Mr. Werden, of Picton, says that grapes ripen there about once in three years, and that it is too cold generally.

SOILS.—Mr. Farley says that in West Hastings what is known as their Oak-hill land is fine for apples, plums or cherries, as good as can be found east of Toronto. They find that any naturally dry land is good for fruit.

Mr. Thomas Briggs, of Kingston, says the soil is generally strong clay, varying, however, in different localities—some black soil. Fruits succeed best in a loamy or sandy loam soil, with a fair mixture of clay.

Mr. Werden says that in Prince Edward county there is a great variety of soil. Trees do best in loamy soil with a limestone bottom, especially in moist seasons, but in times of extreme droughts they do better on a more heavy soil. Extreme droughts prevail between Cobourg and Prescott, supposed to be on account of the clearing off of the forests, hence the necessity of planting out forest trees. His orchard is on rather high land—loamy and gravelly surface with a limestone bottom, and surrounded with a heavy belt of trees. He adds that there is an old seedling tree in that vicinity equally as good as peaches for canning or preserving, but he does not say what sort of a tree it is. He thinks that Prince Edward County yields as many barrels of cider and apples as any in the Dominion.

Mr. John Shields, of Prescott, says their region is too cold for fruit raising.

Strawberries.

To the Editor.

SIR,—Several articles have appeared in the GLOBE and other papers, regarding the crop of strawberries this season at Oakville and other places, but I do not think that any of the localities can compete with the county of Brant, in regard to yield.

Mr. J. T. Charlton, near Newport, had one and seven-eighths acres under crop this season, of which one and a half acres were Wilson's Albany Seedling, and three-eighths of an acre of other sorts, comprising New Jersey Scarlet, Green Prolific, &c.

From the Wilson his crop was 6787 quarts, and from the other sorts 300 quarts. It will be seen from this that the yield from the Wilson is by far the largest in proportion, they producing over 4,500 quarts per acre, and the other sorts (all yielding about an equal crop) only 800 quarts per acre. The Wilson also brought the same price in the market. The average price paid to Mr. Charlton for his whole crop was 9½ cents per quart.

This is the heaviest yield of strawberries yet reported, and had this season been equal to last the yield would have been one-third larger.

W. S.

Brant, Aug., 1870.

The Currant-Worm.

Having had a severe fight with the currant worm, and conquered the enemy, I send you the mode of attack. The worm made its appearance here three years ago, and has grown worse each year. Since its first appearance, previous to this year, I have tried whale-oil soap, four pounds to thirty-two gallons of water and carbolic acid; but not finding either of the above effectual as I could wish, I began to use kerosene oil till it would kill the worm. I used five pounds of whale-oil soap, and one wine quart of kerosene to twenty-five gallons of soft water. Stir the soap and kerosene till thoroughly mixed; add two pails of hot water; stir till the soap is dissolved, then add the balance of the water cold, when it is ready for use. Apply with a syringe with force, in bright sunshine. I do it in the middle of the forenoon. Since I have used this solution I have had few currant-worms, after three applications in bright sunshine. The sun dries the leaves, whereas, if applied in the evening, as is the custom with many, the falling dew gives the worm a chance to revive, so as to go on with its work of destruction the following day.—*Geo. Cruickshanks in Tilton's Journal of Horticulture.*

To which the editor adds:—Besides the above, we are informed that an intelligent and observant horticulturist has found a solution of copperas, in the proportion of one pound to six gallons of water, sprinkled on the leaves, a sure preventive and remedy for the currant-worm, by poisoning their food so that they die in a few hours.

Window Gardening.

Many of our readers take much pleasure in keeping a few plants in their windows, and are always glad of any hints that will help them in the pleasant task of caring for their favourites. Walter H. Bosanquet, Esq., delivered a lecture some time ago at the National Schoolroom of St. George's, Bloomsbury, on this subject, which was printed by request, and we condense from that lecture some thoughts and suggestions which we hope will prove acceptable.

Success in window-gardening depends on constant attention being paid to a variety of small things.

Plants are active during the hours of light, and absorb from the air carbonic acid gas, which is composed of carbon and oxygen. Animals retain the oxygen and give out the carbon, hence plants feed upon that—the carbon—which is injurious to us. At night, however, plants give out carbonic acid in small quantity, hence it is undesirable that they should be in our sitting-rooms or sleeping-rooms at night. But at night plants should be, and naturally are, in a state of comparative rest; daylight having departed, the temperature falls, and the air becomes several degrees cooler. But our sitting-rooms are usually warmer at night, we draw the curtains, poke up the fire, and at least keep up the heat of the room, so that the plants are kept in a state of restless and unnatural excitement, when they ought to be at rest. The effect of all this upon them is much the same as the effect upon us of being kept up night after night, and no sleep during the day. To obviate this must be a part of your care, doing it in such a way as may be most convenient, but in some way reducing the temperature about the plants, yet not so low as to chill them, much less to freeze them.

The size of the pot should conform to the size of the plant, but usually the most convenient size is the one that measures four or six inches across the top, inside the rim. A new pot should be placed for a few minutes in a pail of water to expel the dry air from the pores, and an old pot should be made perfectly clean inside and out. Pieces of broken crock, or charcoal or half-inch bones, should be put into the bottom of the pot, to the depth of about two inches, for drainage, and over these a little moss, or anything to prevent the soil from washing into and choking up the drainage. As for soil, any good garden loam will answer; if it be very strong clay, it might be improved by mixing with it some pure sand. A little turf piled up and allowed to rot, forms one of the best of soils for all pot plants. Put the larger and coarse pieces at the bottom, on top of the drainage, and the finer mould over them, filling the pot to within half an inch of the surface. In order that the air may have access to the roots, the surface of the soil must not be allowed to cake, but should be stirred up occasionally as deep as can be done without injury to the roots. The root should not be allowed to suffer from sudden changes of temperature, and especially should not be exposed to the direct rays of a hot sun falling on the pot. This may be prevented by placing the pot containing the plant inside a larger pot, and filling the space between the two with moss, or any other non-conducting material.

Watering needs to be carefully done. The effect of watering is two-fold; it conveys to the root certain nourishing matters contained in the water itself, and it converts into a fit state for absorption by the roots the nourishing matters which are contained in the soil; for the roots can absorb nourishment only when it is in a liquid state. The best water for plants is rain water, for it contains the largest supply of air and other matters calculated to advance the growth of a plant. If it becomes necessary to use hard water, put into it a little soda, and let it stand in the sun some time before it is used. When watering is done it should be thorough and decided, and then let alone until again required. Judgment must be used in every case, and the plants watered when they need it, and not because a certain hour of the day has arrived. Never merely wet the surface, and leave the roots below without moisture, but moisten the whole ball of earth within the pot. If you have good drainage the surplus water will run out into the saucer, which should be thrown out as soon as you have done watering, except that in very warm and dry weather a very small quantity may be allowed to remain in the saucer. The water should never be colder than the atmosphere in which the plants are living, and should be carefully poured over the surface of the soil, not over the plant. Plants need a season of rest. In this climate the winter is that season, and when at rest plants will need only just sufficient warmth and moisture to keep them alive. Plants intended for winter growth should have a month or two of rest at the end of the summer.

At night plants should be left in the dark, and have a lower temperature than during the day; but on the return of day they should be freely exposed to the light so long as the day continues, only shading them when the sun is hot. They should stand as close to the window as may be practicable, and the pots turned every day or two, that all parts may be equally exposed to the light. There should be no scarcity of light, for this is absolutely necessary to enable the leaves to discharge their functions properly. When the plants are taking their annual rest, there is not the same need of abundance of light.

Plants also need a constant supply of fresh air, therefore the window should be open as much as possible during mild weather; yet, while they are benefitted by a liberal supply of fresh air, they are injured by being exposed to draughts. If plants are kept in warm rooms, closely shut up, they become very sensitive, and liable to suffer acutely at any sudden fall of temperature. If, on the contrary, they are frequently and freely exposed to fresh air, they become more hardy, and better able to bear sudden changes of temperature.

Another important consideration is cleanliness. The leaves of plants are perforated with thousands of small pores, the same as the human skin. Through these pores the plants breathe as it were, absorbing carbon and giving out oxygen, and through these they absorb and give out moisture. Now, if a plant be coated with dust it is quite unable to perform any of these functions. It is therefore necessary to keep the leaves of plants clean, and when they get dusty, wash them. Wash each leaf with a sponge and warm water, and if they are very dirty use a little soap, and after the washing has been completed, dip the whole of the top in clean, tepid water. But much can be done in the way of prevention, which is better than cure. They should be kept from getting dusty as much as possible. When the room is swept and dusted, the plants may be removed to another room, or a light cloth or sheet thrown over them to prevent the dust from settling on the leaves. When the air is dry and warm it is well to sprinkle the leaves with a little water; this will afford a supply of moisture to the plants. But the leaves should never be washed or sprinkled while the sun is shining directly upon them, they must be kept out of the sunshine until they are perfectly dry. There is a natural method of washing the foliage that can be often resorted to, namely, that of placing the plants out in a gentle rain, but it will not follow that because they have been out in the rain they have also been watered, for if the leaves cover the pot they will be likely to shed off the rain beyond the rim, so that the soil in the pot will have been but partially moistened

The foregoing hints are intended to apply to the growing of all window plants, without particularizing the peculiar treatment which is applicable to any particular kind of plant. Those will be most successful who study the peculiar habits of the plants they desire to cultivate, and do not try to grow in the same window, or in the same room, plants of such opposite habits that the temperature and moisture of atmosphere best suited to one portion is wholly unsuited to another. The Camellia requires a cool and moist atmosphere, and will flourish with a northern exposure where it has little or no direct sunshine. The Rose will flourish with less moisture, but prefers a cool temperature. The Fuchsia is fond of both warmth and moisture, but does not like long exposure to the direct rays of the sun. The Coleus requires plenty of heat and moisture, and indeed prefers that the thermometer should never fall below seventy by night or day. The Geranium is probably the most easily grown of all window plants, only provided that it has abundance of light and air, and not too much heat. Since the advent of double Geraniums there is less need of multiplying kinds of plants, as with the Rose, Fuchsia, and Geranium, one can command a great variety and one of exceeding beauty, while by a careful attention to air, light and cleanliness plants may easily be kept healthy and vigorous.

Brantford Flower Show.

The Directors of the Brantford Horticultural Society held their first show this season on the 1st July, in the drill shed of that town. The exhibition was a very good one, and was well attended. The articles for exhibition were placed on three tables, each sixty feet long and six feet wide, having the flowers in the centre, and fruit and vegetables on each side. The floral table was well filled, and showed some very good plants, and although short of greenhouse plants, yet the large quantity of plants exhibited, (otherwise grown), fully made up for the loss.

Among the most noticeable of these were some fine Coleus belonging to Mr. Sanderson, who took the first and second prizes for foliage plants. The Hon. E. B. Wood was awarded the prizes for greenhouse plants and Pelargoniums. Mr. Sanderson also took the first prize for Balsams in pots. Bouquets, both hand and table, were very poor, only two or three really nice being shown, and the best in each class were awarded the second prizes. Some fine Petunias and Verbenas were shown, also Zinnias and other annuals. Of collections of annuals some very fine lots were on the table, more especially those exhibited by amateurs, among which those shown by Mrs. Veal, Mrs. Gale and Mrs. Smith, were the best. A large table bouquet of native flowers, shown by Mr. Peachio, was much admired. A collection of native flowers named was shown by Mr.

Sanderson, and included some specimens of *Lilium Canadense, Lilium Philadelphicum, Cypripedium spectabile, Calopogon pulchellus, Castillega Coccinea*, etc. The same party also exhibited a Wardian Case, filled with native ferns, which attracted much attention. The amateurs shewed some fine pot plants, most observable of which were good specimens of Gloire de Nancy Geranium, Double Petunias, Fuchsias, and a very large lot of fine Balsams, also a few large Oleanders, the largest of which, shown by Mr. Wilkes, was awarded the first prize, and was a very fine plant just coming into full flower.

The fruit table was very scanty, but had the usual show of apples and cherries, the latter very fine; the best quart was shown by Mr. W. A. Smith, named Cleveland Bigarreau. Mr. Smith also took the first prize for four varieties with Yellow Spanish, Cleveland Bigarreau, Black Eagle and Black Tartarian. Currants, red, white and black, in good show; also a few bottles of grape wine were on the table.

The vegetable department was well represented, and some very fine things were exhibited. In beans, onions, lettuce, etc., there was plenty of competition. In potatoes, Early Rose was the chief competiter, and were very fine; Breeze's King of the Earlies was also on exhibition; it is not so large a variety as the Rose, but a very fine potato. In beets there were large lots exhibited, both long and turnip. In the latter class, a new beet, called Egyptian, was shown, and awarded the first and second prizes, being very handsome, dark coloured and of fine quality. Collections of vegetables were also shown, including very large varieties of vegetables.

The Band of the Grand Trunk Railway was in attendance during the evening, and the exhibition was well patronized by the townspeople, who recognize the exhibitions of the Horticultural Society as standing institutions of the town.

This exhibition was in effect the best yet held in Brantford for a summer show; nearly every article exhibited was excellent, and would compare very favourably with any other society exhibition at same dates. There was a falling off from the number of entries made for last 1st of July, but the quality of nearly everything was very much superior to what was exhibited at that time. —*Communicated.*

Use of Wind-Breaks.

Belts of trees—deciduous and evergreen—will break off the wind from a large tract of land, and render the local climate comparatively mild and equable. The effects of a screen of evergreens, particularly in breaking off the wind from houses and grounds, and in modifying the cold of winter, is far greater than one supposes who has had no experience in this matter. It is said by those who have made the experiment, that the expense of planting such trees about a house is soon covered by the saving of fuel occasioned by the shelter they afford. Such belts may not break off all the winds that blow, but they will soften their asperity, and apparently mitigate their coldness.

Experiments of this kind have been tried on sea-shores, and with success. A recent traveller speaks of a certain district in England, on the cliffs of the German Ocean, which had formerly been a bleak, sterile promontory, but is now a beautiful and productive garden. And this transformation was effected by building on the exposed sides, first a "strong, high fence of furze bundles or brushwood, and then planting inside of this a thick screen of trees." These trees consisted chiefly of the Norfolk black willow, Scotch elm, larch, and ash; and of evergreens, the *Pinus pinaster* and Scotch pine. These trees were fringed with such shrubs as the snowberry, alder and herberry.

In visiting several fruit-orchards near Cayuga Lake, last summer, we noticed that two of the very best were shielded on the north and west sides by screens of Norway spruce. A single row of these trees answered the purpose, and they were set out the same year that the orchards were planted.—The American arbor-vitæ (the common white cedar) and the hemlock spruce, would answer an excellent purpose as wind-breaks, the only objection to the latter being the difficulty of transplanting it.

But enough has been said to illustrate the importance of shelter, and to suggest some of the means by which such protection may be secured. We need it at all seasons of the year, but especially in winter. We need it for the comfort and pleasantness of our homes, for the comfort and health of our labourers and of our domestic animals, and for the complete success of our attempts to cultivate well the earth.—*Hearth and Home.*

Bark-Splitting of Apple Trees—Black Knot on Plum Trees.

To the Editor.

SIR,—My apple trees have suffered also from the splitting of the bark, mentioned in the CANADA FARMER. I have one hundred trees that have been set out three years, and one hundred that have been planted eleven years, and nearly one-third of them have the bark split. I have two hundred older trees, that are not hurt. The bark split at the time of the first freeze; when I first saw them the ground had frozen very little. The way I account for it is this, that the sap was yet up when the trees were frozen. I have worked in orchards over thirty years, and I never knew the winter set in when the trees were so green before, and I think that to be the sole cause. In my older trees the split is healing fast. Some of the youngest are split on two sides, and the bark is loose nearly all round the tree, and these are very pale-looking. Mr. Tayler, of St. Catharines, speaks of splitting the bark with a knife; but this is quite different, the knife does not loosen the bark.

If Mr. Squelch will examine his plum trees closely in August or September, he will find a worm in the knot. I have kept mine clean by searching closely about August, and cutting the knots off and burning them. If he will leave but two or three on he will have plenty next summer.

H. H.

Pelham, July, 1870.

Peas.

T. R. Elliott writes to the *Rural New Yorker* that Carter's First Crop Pea, sown for several years at the same time with other early kinds, is always from four to six days ahead of all the rest, and is the most productive. Sutton's Ringleader he finds to come in from a week to ten days later, and to perfect its crop gradually. Tom Thumb, Little Gem, Dan. O'Rourke and Prince Albert are not as early as Carter's First Crop, and not as valuable for a second early pea as Waites' Caractacus. McLean's Advancer follows Caractacus, and, for a Wrinkled Marrow, early and good, but not profitable for market, Yorkshire Hero has proved this year more productive and profitable than Champion of England.

NOTE BY EDITOR.—The Advancer Pea is a dwarf-growing sort, and on that account preferable, requiring no bushing or support. Its quality is of the very best.

Washes for Fruit Trees.

Twice a year, at least, every fruit tree in the orchard should be washed with some liquid, strong enough to destroy the eggs and pupæ of insects, and the roots and spores of mosses and fungi. In using caustic ley for the destruction of bark lice, several persons have killed their trees, as sometimes the bark turns black and peels off after the application of this wash, and the death of the tree follows. Lime whitewash is recommended by some persons, but it is unsightly and is disapproved of by the most experienced fruit growers; soap suds are harmless, but are too mild for the purpose for which the application is required. The most suitable wash is a solution of common sal-soda in the proportions of one pound of soda to a gallon of water. Rain water is the best for this purpose. This wash will not injure the bark, but will kill the eggs or pupæ of insects, and will clear away mosses, etc. It will remove dead bark and produce a healthy surface.—*Western Rural.*

PRESERVING PLUMS FOR EXHIBITION.—A subscriber from Richmond wishes to know "which is the most effectual method of preserving early plums for fall exhibitions?" If any of our readers can give the desired information they will confer a favour.

Marantas, or Calatheas.

Amongst pictorial-leaved plants there are few that can compare with the beautiful species of Maranta which have of late years been introduced. The Begonias are, some of them perhaps, equally striking as to colour, but they are mostly wanting in the refinement of character which is a prominent feature in the Marantas. Did we say Marantas? Well, that is, perhaps, a moot point. Some at least of them have been determined on good authority to be Calatheas, and it is assumed that many, if not all of them, are so; but, whether Calatheas or not, there is probably no family which has so rapidly as this filled up its ranks with distinct and beautiful forms.

MARANTA VEITCHII.

The Maranta Veitchii (admirably figured in the accompanying illustration,) occupies, in my estimation, the first place in point of beauty, on account of the size and rich and varied colouring of its leaves, the paler portions of which are transparent, and contrast most admirably with the purple and dark green tints of the upper and lower surface. Closely allied to it, however, in aspect, and scarcely, if at all, inferior to it in beauty, comes M. Lindeniana, a plant of the same character, and with similar colouring in the leaves. M. Vanden Heckei is a smaller-growing species of the same type, referred by some authors, as a variety, to M. picturata.

Of another type, but also of exquisite beauty, is the M. rosco-picta, whose rounder leaves have shorter footstalks than in the foregoing, and are most charmingly tinted with darker and paler green, and marked by a rose-coloured zone. M. illustris is a variety of this according to Dr. Regel's opinion, but, variety or not, it is a most ornamental plant, being barred transversely with light and dark green, and zoned with pink. Under the name of M. ornata (but not the ornata of Veitch), Dr. Regel brings together sundry beautiful forms known as albo-lineata, rosco-lineata, regalis, and majestica, which are marked by transverse lines of bright colour, red or white, on a green ground. Another set has green leaves with white zones, M. virginalis being one of the most striking, with its broad almost orbicular leaves, and white band and costa; M. Baraquiniana is smaller, with ovate-lanceolate leaves, and broader belts of white on each side the costa.

Still another beautiful type is represented by M. splendida, which has the leaves of a deep bright green, with transverse yellow grand bands, looking very much as if a pale green pinnate fern had been painted on the Maranta leaf. Mr. Veitch's original ornata was of this type, only the fern portrait was dark green on a pale ground. The old M. zebrina is another most beautiful plant, as our exhibitions sometimes testify.

Space would, however, fail to note the many charming objects which this genus presents, and I pass on to observe that, as stove plants, they are by no means difficult

to grow. What they need is liberal treatment. In spring, when they may be divided if necessary, or taken to start on into growth, they require a brisk moist heat to be maintained about them. Later, when growth is mature, they may be used to decorate the temperate conservatory. The soil should be fibry peat and sharp silver sand, with an admixture of charcoal fragments, and at the last potting, of a little sweet fibry loam; and the drainage must be good, as they require an abundance of water while growing freely. During winter they should be at rest, and should have comparatively little moisture at the roots.—C. A. in *Gardener's Chronicle.*

Twice-fruiting Raspberries.

A correspondent, writing from Bowmanville, states that he has a yellow fruited raspberry which was "very nearly all killed by the winter," and that he is surprised to find that the canes which have grown up this season are nearly all bearing fruit, and wishes to know whether these same canes will bear fruit again next year.

Had our correspondent been able to give us the name of the variety of the yellow raspberry, we should then have known whether it was one of those which bear fruit twice the same season.

The Belle de Fontenoy, Lum's Yellow Canada, and others of this class, give a crop of fruit on the canes of last year, when not winter-killed, which ripens at the usual raspberry season, and another crop upon the canes that come up during the summer, that ripens in the autumn.

If our correspondent's variety is one of the autumn bearing sorts, then those canes which have come up from the roots this summer will ripen their present crop in the autumn, and bear another crop next season, that will ripen at midsummer. But it is quite possible that his variety is not one of those that fruit twice in a season, and that the shoots which are now showing fruit have not come up from the root, but have branched out from the cane that was injured by the winter at a point very near the ground, and below the injury. If this be the case, these branches will this year bear fruit that will ripen a little later than the ordinary season of raspberries, but will not bear fruit again next season.

We think our correspondent will be able, by examining these fruit-bearing shoots, to determine whether they spring from the canes of last year, or from the roots, and so decide whether they may be expected to bear fruit another year.

APPLE SUCKERS.—A correspondent enquires "which is the best way to prevent apple trees from growing young shoots or suckers around the roots?" Healthy apple trees do not send up such shoots, unless the soil has been removed from the collar, so as to expose some part of the root. Such shoots are the result of disease, injury, or bad treatment.

The New Roses.

"D., Deal," writes to the *Cottage Gardener* an account of the new roses of 1868 and 1869 which were exhibited at the Royal Horticultural Society's show, from which we make such extracts as will be of interest to our Canadian readers.

Thyra Hammerich is a very pretty blush-white rose, with shell-like petals, formed somewhat in the style of Baronne Prevost, only a little more cupped.

Souvenir de Monsieur Poiteau has come very rough this season, but its colour will always insure it a welcome.

Mademoiselle Eugenie Verdier is a very pretty rose, and likely to be an acquisition.

Marquise de Mortemart is an undoubtedly good rose in a section where good roses are much wanted, blush white.

Emilie Hansbury, a prettily shaped pale rose, and with imbricated petals.

Dupuy-Jamain, a beautiful carmine rose, well worthy of cultivation.

Victor le Bihan, beautiful, bright rosy carmine.

Monsieur Journeaux is of a very peculiar shade of colour—reddish scarlet with a purplish tinge through it—good form and large.

But to my mind, the finest flower of the season is Louis Van Houtte. It is of the shade of the old Cabbage Rose, and has also its fine perfume. In colour it is like Charles Lefebre when it comes dark, approaching at times to that of Prince Camille de Rohan.

There is another rose, whose position is now so well established that it is not needful to say much of it, but I question if at the show there was one rose which sooner caught the eye and held captive the beholder than Duke of Edinburgh. In brilliancy of colour it is unsurpassed, while its fine habit gives it also a claim which many dark roses do not possess.

Bark-Splitting.

To the Editor.

SIR,—As my theory of bark-splitting is different from any I have noticed in the papers, permit me to present it for consideration. As far as my experience goes, spring is the only season when it is to be discovered. According to circumstances the evil may be detected earlier, or later in the season. A careful examination of the trees as the snow disappears, will probably lead to the conclusion that the injury has been done then. Who has not noticed, on a melting day, basins formed around the trees? If the evening succeeding is frosty, and circumstances favourable, a collar of ice will be formed at the bottom of the basin, and around the tree. Perhaps a cold spell sets in, and the collar tightens around the tree and the bark is injured, particularly if the growth has been vigorous the preceding year. Your correspondent's heaps of dung and mounds of earth afforded the very facilities necessary for the formation of the icy band. I am not sure but the treading of the snow around the trees, to prevent the approach of mice, may have the same effect. One of my dwarf apples I found to be badly injured last spring, and I concluded it was destroyed; but with a vague hope that it might survive, I gathered a mound of earth around it, and with some fruit and foliage a little paler than usual, it still gives indication of vitality.

With my girdled trees—of which I had a good number—I have tried different experiments, uniting the bark above and below with scions, covering all up with a mound of earth; plastering with cow-dung and clay, adding the mound; boxing the tree and filling in with different materials, such as mud, soil and cow-dung. Some of the younger ones I simply painted, some with blue paint, and others with water lime and milk. One stately tree I removed from the garden to the orchard, forming a band of clay around the girdled part, and wrapping it around with a rope of withered grass. Strange to say, they are, without exception, alive and living-like at the present time.

Trees with split bark, I am persuaded, may be saved by scions uniting the separated parts after the injured bark has been cut off. If the operation is carefully performed, and proves successful, valuable trees may thus be preserved. I believe the addition of the mound of earth to be always important.

WALTER MILNE.

Nithbury.

More New Raspberries.

The *Rural New Yorker* gives an engraving of a new raspberry, called the Herstine, and a description of it, and of three others, the Ruby, Saunders and Elizabeth.

The Herstine is reported by the Fruit Committee of the Pennsylvania Horticultural Society to be a most abundant bearer, fruit large, crimson colour, flavour sub-acid and very good.

Ruby is reported as being an abundant bearer, fruit large, of a dark crimson colour, flavour sub-acid and excellent.

Saunders is said to be a good bearer, fruit very large, of a crimson colour, of high character, and delicious.

Elizabeth they say is a great bearer, fruit very large, crimson-scarlet, firm, of delicious flavour, and late in ripening.

These were raised from seed of the Allen raspberry, grown on plants which fruited in close proximity to the Philadelphia, and are thought to show signs of crossing between these two sorts.

The report of the committee is in too general terms to enable the reader to form any very distinct idea of the distinguishing qualities of these new raspberries. We can not tell whether they are as hardy and productive as the Philadelphia, or whether they can compare in flavour with the Col. Wilder or Brinckle's Orange, or in size and firmness with the Franconia. However, as these

plants are now offered for sale at the *very low price* (!) of three dollars each ! ! any one who is very curious to know more of these new fruits can get a plant of each for a pound note, and find out for himself.

Pansies from Seed.

The Pansy, *viola tri-color*, is deservedly a favourite with amateur, as well as professional florists, and should be more generally cultivated. It is easily grown from seed, delights in a rich and rather moist soil, which is best prepared by digging the ground deep, pulverizing it well, and making a liberal addition of well decomposed cow manure. The seed should be fresh, as its vitality is not of great duration. In out-door cultivation the seed may be sown during July and August, in rows, and quite thin, that the young plants may attain a good fall growth. At any good seed store may be obtained seed of both the English and German varieties; the latter furnishing the greater proportion of the light-coloured and fancy varieties.

After the young plants are well up, keep the ground free from weeds, well stirred, and if very dry, water thoroughly. The plants may remain in the seed-bed during winter, protected by some evergreen or other brush, and some of the waste vines from the vegetable garden. The bed should be well drained to prevent the action of frost affecting the plants injuriously. When plants are wanted for early spring blooming or sale, they are best wintered in a cold frame in rich soil. Covering the glass with mats, set them at sufficient distance apart to allow of good spring growth. As they flourish in quite cold weather the mats may be removed early in spring, when they will at once begin to grow, and come early to bloom.

For later planting they are best wintered in the original seed bed, and transplanted where desired at time of setting other bedding plants; with good cultivation they will come soon into bloom, and continue up to the hot weather of summer, if picked freely.

Very large flowers are obtained by a liberal use of fertilizers. The best, for the purpose, is obtained by filling a barrel from the cow-yard, and leaching this with rain or river water, and applying the liquor diluted to the roots of the plants. Amateurs form a cup-shaped cavity around the roots, fill with the liquid manure and cover it with soil, sprinkling the plants with fresh water afterwards to keep the foliage clean. As they will bloom but little during hot weather, unless freely watered, the large stalks may be cut off, and new shoots allowed to grow, which will become vigorous during the fall, and bloom until covered with snow; indeed, we have gathered fine bouquets of bloom during a thaw at the holidays.

As the plants come into bloom, those not showing flowers of colours clear and well defined, should at once be removed. Those in which the colours run, or blend, so as to give them a greenish or muddy appearance, are not worth cultivation. The standard shape of the flower when the leaves are flattened on the hand, is that they should be nearly a circle, and, under good culture, as large as a silver half dollar. By placing a variety of the most desirable colours and forms in one bed, a first-class seed may be grown, and the general variety very much improved. As the seed pods burst at maturity, much care is needed to secure seed in any amount. Those who desire plants only for bedding out, can obtain a good supply by stirring the soil lightly, and allowing them to grow where dropped. A little care in selecting good form and colours, will enable the cultivator to soon possess a very desirable collection.

In this connection we may say this is the appropriate season for sowing the seeds of such biennial and perennial flowers as it is desirable to transplant early the ensuing spring for summer blooming. Always sow upon a well prepared seed bed, where they will not be affected by water during winter, and protect with brush and refuse of the garden, care being taken that the plants are not covered so as to smother or rot them.—*Rural New Yorker.*

Planting Apple Orchards.—Distance Apart.

Mr. F. R. Elliott, of Ohio, is one of the ablest horticulturists of the day, and his thoughts upon any matter, especially relative to fruits and fruit culture, are well worthy of a careful consideration. In a recent number of the *Rural New Yorker* is an article from his pen, entitled "Dwarf Apple Trees," in the course of which he seems to be thinking aloud on the question of distance apart most desirable for an orchard of standard apple trees, and as his thoughts are not mere day-dreams based on nothing, but the calm reasonings that spring from experience, and his conclusions such as have been forced upon his convictions against the bias of inherited example and general practice, we lay them before our readers, remarking only that the force of his suggestions is rather augmented than diminished by the difference of climate between Ohio and Ontario:—

I set out in life with the orchards of my father as my early study, and there the trees were forty feet apart. I read author after author, each of whom carried their teaching in true rotation, and as I now view it, based only upon the wants of the apple tree when it reaches its full maturity. Thought and reference to the different habits in growth, their upright or spreading forms, have never, or rarely, been touched upon; nor has the comparative value of shade of the soil, as an ameliorating item conditional with the health of the tree, been duly considered by advisers as to the distance at which to plant trees; and even at this day, I read articles saying:—"Plant your apple trees thirty-five to forty feet apart." Now, I have no action to take with such advisers; it is their view, and is worth what it is worth; to many, it is correct and wise; to me it is the reverse.

In 1850 I commenced a specimen orchard of apple trees, and planted them twenty feet apart, a distance which all my friends said would require at least every other tree to be removed in ten years. The trees did well, for I gave them good care. Then the property passed from my hands, but it has been well cared for, and I have had opportunity to watch its growth, and now twenty years have passed, and the trees do not shade more than one-half of the surface of the ground. In the production of other crops it has been of no value, as in working the orchard the roots, &c., gave more trouble than the value of any crop obtained. Had I planted those trees ten feet, or even eight feet apart, and cultivated for them alone until the trees were too large for cultivation, and then mulched, I am satisfied that I, or whoever was the owner, would have gained thereby, for the space, in the time, would not have been more than fully occupied, and had the trees been kept headed back, say by pruning in July, the crop would have been annual and profitable, while the other half or two-thirds of the land could have been used for other crops, free from the annoyance of working among trees.

In 1863 I set out another orchard of standard apples, each sixteen feet apart, and at the same time I set the same number of dwarfs on the Doucain stock, each six by five feet. The results are that on the former I have gathered say two to three bushels of fruit, and on the latter fifteen to twenty; but now my dwarfs are loaded, while my standard orchard has perhaps two bushels for the year.

Taking all things into account, estimating the soils of our Western prairie or new lands, the extremes of heat and cold of our climates, the severe storms of wind to which we are subject, etc., I am free to confess that at this time I am an advocate of closer planting than has heretofore been generally practised or advised. I am satisfied I see a gain in protection and shade from the first. I see a gain in the crop for ten years, considering the extent of land and the value of culture used, by planting eight feet instead of thirty feet or even twenty feet apart. I see a health and vigour, a less liability to injury and decay from severe action of sun or storms, in the thickly planted orchard as compared with that to which we must look forward thirty years for its maturity, and I am disposed to think we have paid too little attention to a stock on which to work choice sorts, that when grown will bring them early into bearing, and once in bearing help to prevent our having to thin them out, if inadvertently we have planted a little too closely.

Our Vines and Vine Trellis.

Last spring, the old fence against which our vines were trained was blown down. It had been erected fifteen or twenty years, the posts had become much decayed, and the boards scarcely less so. I was not sorry to see it overthrown by a heavy south-west wind, but how to mend the loss became our next care, and many plans pro and con were mooted and in turn rejected. Finally, the plan of posts and wire was substituted for a fence to train the vines on. The distance was about 160 or 170 feet.

One day in early spring, when time did not press for other things, I procured some pieces of scantling and small round cedar posts, and set them about fourteen feet apart and 3½ feet deep, having first planed them smooth and finished them in a sightly manner. I put the first post deeply and strongly into the earth, and as it had to bear the pull of the wires, I placed across it, at the surface of the earth, but buried below it, a piece of scantling two feet long. This was required to afford resistance to the pull of the wires. Each post projected 4½ feet above the earth, and was bored at intervals of one foot, with four half-inch auger holes, and then all being put in level and of an even height, they presented a very neat and pretty appearance. I next obtained 650 feet of wire, about as large as a wheat straw at the ear, and passed it through the holes in the posts, after taking a turn round the first one.

You will see that there was thus formed a straight, handsome wire fence to train the vines on, but the wires were slack, and I was so pleased with their appearance, so far, that I determined to have them tight and straight as a fiddle-string. I therefore braced the last post as I had the first, with the piece of scantling, and taking the projecting end of the wire where it passed through the last post, winding it around a stick, and setting my feet firmly against the post, I was enabled to put a heavy strain on the wire, so much so as to make it as straight as an arrow and as tight as possible from end to end. A dexterous twist around the post, without letting back in the least, securely fastened the end, and this was repeated with each wire, and I had as handsome a trellis as one could wish. We trained the vines part one way and part another, and wove them around the wires, fastening them where refractory and refusing to lie close, with twine.

It is now August, and we have a handsome hedge of vines, trimmed here and there to keep it within bounds, which forms a beautiful boundary, and at the same time affords abundance of grapes. We find the Hartford Prolific, Concord, and Delaware, succeed admirably with us. We manure them most abundantly, of which more by and by, when we see the result.

Last year was one of great hardship for vines. Few about here had any grapes ripen, and I saw numbers of vines whose fruit was green and shrivelled when the frost came, whilst ours were as abundant as ever, and ripened to perfection. We attributed it to the manure used; and if it answers as well this year as formerly, I shall certainly ventilate the plan through your columns.

C.

NOTE BY THE EDITOR.—C. will do well to loosen his wires at the approach of winter, lest the contraction of the wires by cold either loosen the posts or snap the wires

Fruit Growers' Association of Ontario.

The autumn general meeting of this Association will be held in the Town Hall, St. Catharines, on Thursday, the 22nd day of September, 1870, at 11 o'clock, A.M.

Members are requested to bring with them samples of such fruit as may be in season, especially of grapes, pears, plums, and crab apples, for comparison. It is expected that there will be a fine show of grapes in particular, especially if members will all contribute what they can. Those who cannot come to the meeting may send samples by express to the Secretary.

The following subjects are suggested for discussion :—

THE GRAPE VINE.—1. Best methods of pruning and training. 2. Best method of grafting. 3. Best method of manuring. 4. Winter protection. 5. Destruction of insects. 6. Earliest varieties.

PEAR TREES.—1. Their cultivation. 2. Pruning. 3. Manuring.

CRAB APPLES.—The best sorts, and their economic uses.

Members are requested to read or cause to be read to the meeting papers or short essays on any branch of fruit culture, especially any facts of interest that have come to their knowledge, or fallen to their experience.

Members will please report at the same time on the growth of the Eumelan grape.

By order.

D. W. BEADLE,
Secretary.

St. Catharines, Sept. 6, 1870.

FRUIT IN NEW YORK CITY.—There seems to have been an over-supply of fruit in the New York market. The *Rural New Yorker* says that on Tuesday, July 26th, many of the finest Lawton blackberries ever raised were left to spoil for want of buyers, though offered at four to six cents per quart. Raspberries were sold by the car-lead at four cents per quart. Apples, too, have been largely in excess of the demand. Selling at $2 to $3 per barrel.

Our Garden.

"Our Garden"—How much there is in these two words, so much of home and its attractions, good for father, mother, children and all. But to have a garden worthy of the name, we must not expect only to work with a plough and team for about three days in spring, and do no more all the remaining part of the year. A mere vegetable patch is not worthy of the name of "Our garden." What I mean by a garden is some lawn, plenty of deciduous trees, and some evergreens in their proper place, good orchard trees, and vines, with a plentiful portion appropriated for vegetables and small fruits. This garden will require work and attention, and if of any extent, no doubt the time required will sometimes be ill spared, but the garden is such an ornament and luxury that all are ready to put a hand to its decoration. Odd hours are continually occurring, in which much may be done. Then the vegetables are such an addition to house-keeping; often and often there has been wanted in the country something for dinner and tea besides just perk and potatoes, bread and butter. A good garden has always something to be found in it for such a purpose; peas, beans, cauliflower, tomatoes, rhubarb, radishes, squash, cabbage, onions, beets, etc.; all these things are most useful, and they will repay the time, care and trouble of raising them. Not to mention flowers, fruits of all kinds, gooseberries, currants, apples, pears, blackberries, raspberries, all are to be had in abundance for just the trouble of planting, manuring, and keeping free from weeds; and what an addition to housekeeping these form.

Often in cities, and particularly in their environs, do we see an acre, and sometimes much more of meadow land, around two sides of a nice house, with trees scattered about, every little depression made something of, and forming a great attraction by its neatness alone; and such a meadow on a more extensive scale, with such trees, is within the reach of every farmer in the land. There is absolutely no expense whatever attending it after planting, as sheep will crop the grass without injury to the trees, and mowing is quite unnecessary. You may depend on it, to bring up a family with such an addition to their home, is to give the first strong inducement to the girls or boys to possess such a home of their own, and they will ultimately have one. Their minds are set towards it, and having always been used to it, will not readily dispense with such. Bear this in mind, fathers and mothers, and if you desire your children's welfare, and that they should like home, devote two or three acres about your homestead to meadow, trees, garden and walks, and a drive up to the house through them.

C.

NOTE.—When will our well-to-do farmers act upon such suggestions as these, and make each home, to the members of each family, the prettiest spot on earth, and our Canadian home the most beautiful and attractive country of this Continent.

A truthful and circumstantial biography in all its relations of a single insect, has yet to be written.—A. S. PACKARD, Jr.

MUSHROOMS.—Directions respecting the method of growing mushrooms were given in the CANADA FARMER for September, and that of December, 1869. The spawn can generally be obtained from seedsmen.

FRUIT AT NEWPORT, ONT.—Mr. James Cowherd writes to the Secretary of the Fruit Growers' Association:—"All my best seedling peaches and apples are in fruit this year. Apples are a good crop, and fairer in appearance than last year. Cherries have been a good crop. Peaches and plums are a fair crop. The pear blight has appeared again; it has not yet done as much damage as last year.

STRAWBERRIES AND RASPBERRIES.—A correspondent of the *Rural New Yorker*, writing from Kentucky, says that the Wilson is, beyond all cavil, the best market berry yet propagated. Green Prolific is large, beautiful and attractive, and almost equal in productiveness to the Wilson, and he esteems it above all others for home use and a near market. He says the Philadelphia is the most prolific of all the red raspberries, flavour quite fair, canes very hardy; and the Mammoth Cluster the largest of all the Black Caps, and enormously productive.

PREVENTION OF MILDEW ON ROSE TREES.—This season the Rose trees in my garden have been kept free from green fly by syringing them two or three times, at intervals, with a wash costing less than 2d. the gallon. I make it thus—Pour 1 gallon of boiling water on 12 ozs. of African aloes and 3 ozs. of potash, and add 16 ozs. of soft soap and 10 gallons of water. This mixture is valuable as a dip; it will keep good for two or three weeks —*Cottage Gardener.*

CRANBERRIES.—Three or four years ago I transplanted cranberry vines from my meadow to one of my gardens, which is pine plain land. They have grown well, and they are now loaded with fruit. I had compromised with them; that if they would come and live with me on my land, I would bring them their native soil, so that they would not suffer by emigration. I dug channels two feet wide, twenty inches deep, and three feet apart. I removed the gravel, and filled the channels with muck from whence they were to be taken. I took up the cranberry plants, in small clusters, and set them deep in their natural element. They appeared to be perfectly contented with their new locality. They now occupy one square rod of ground, and they are beginning to enlarge their borders. I keep this patch clear of weeds. The expense of this cranberry square rod was about two days' labour of one man, and one day's labour of one horse. The prospect now is that the cranberries will yearly pay expenses of their new settlement. Muck and experiments well directed will prove successful.—*Journal of Agriculture.*

Poetry.

Old Age.

The light of spring, the summer glow, are o'er,
And I rejoice in knowing that for me
The woodbine and the roses bloom no more;
The tender green is gone from field and tree;
Brown barren sprays stand clear against the blue,
And leaves fall fast, and let the truthful sunlight through.

What is there to regret? Why should I mourn
To leave the forest and the march behind,
Or toward the rank, low meadows sadly turn,
Since here another loveliness I find,
Safer and not less beautiful and blest,
With glimpses, faint and far, of the long wished-for Rest.

And so I drop the roses from my hand,
And let the thorn-pricks heal, and take my way
Down hill, across a fair and peaceful land,
Lapt in the golden calm of dying day,
Glad that the night is near, and glad to know
That, rough or smooth the way. I have not far to go.

Art Thou Living Yet?

Is there no grand, immortal sphere
Beyond this realm of broken ties,
To fill the wants that mock us here,
And dry the tears from weeping eyes;
Where winter melts in endless spring,
And June stands near with deathless flowers;
Where we may hear the dear ones sing
Who loved us in this world of ours?
I ask, and lo, my cheeks are wet
With tears for one I cannot see.
Oh, mother, art thou living yet,
And dost thou still remember me?

I feel thy kisses o'er me thrill,
Thou unseen angel of my life;
I hear thy hymns around me trill
An undertone to care and strife.
Thy tender eyes upon me shine,
As from a being glorified;
Till I am thine and thou art mine,
And I forget that thou hast died.
I almost lose each vain regret,
In visions of a life to be;
But, mother, art thou living yet,
And dost thou still remember me?

The spring times bloom, the summers fade,
The winters blow along my way;
But over every light and shade
Thy memory lives by night and day.
It soothes to sleep my wildest pain,
Like some sweet song that cannot die,
And like the murmur of the main,
Grows deeper when the storm is nigh.
I know the brightest stars that set,
Return to bless the yearning sea;
But, mother, art thou living yet,
And dost thou still remember me?

I sometimes think thy soul comes back,
From o'er the dark and silent stream,
Where last we watched thy shining track,
To these green hills of which we dream;
Thy loving arms around me twine,
My cheeks bloom younger in thy breath,
Till thou art mine, and I am thine,
Without a thought of pain or death.
And yet, at times, mine eyes are wet,
With tears for her I cannot see—
Oh, mother, art thou living yet,
And dost thou still remember me?

Household.

Painting and Oiling Furniture and Floors.

We had several wooden chairs that were originally of good quality, but years of use had rubbed off the paint, and caused them to look worn and shabby. They had been superseded by more handsome cane-seated articles, and the wooden ones were, as a matter of course, condemned to the lumber-room. Examining them one day, I selected four of the best and least injured, and painted them green, and they are now a great convenience, as well as quite an ornament to our garden.

I like painting, and am subject to periodical attacks of it. When I once begin, and see how much every article is improved by two thin coats of paint, laid on carefully, and well dried before using, it seems as if I never could stop; every article is so much benefited. This year the attack reached its culminating point, and I commenced painting the house, and was much pleased by the greatly increased comfort and improved appearance arising therefrom.

At first I confined myself to the back steps and porch, wooden structures roughly put up, and which had never been painted. The amendment extended to the repair of brickwork, and some ornamented facing boards all round the gable, which were also painted afterwards. The window-blinds and window-seats were also gone over, and even the kitchen floor threatened; but here the higher powers interfered, and I was near being expelled, paint-pots and all—a warning against improvers going too far. Not that the lady of the household objected to the appearance of paint, or even the smell, but the truth must be told—painting floors had been tried on an amateur scale two or three times, at intervals of some years, and whether the paint was bad, or from some other cause, I do not know, but the success was not great. In fact, it was a dead failure. The paint would not dry and get hard, and I did not even get the credit I deserved, namely, that of wishing to save such eternal scrubbing.

I always blamed the paint, and have reason to warn amateur painters against falling into the same error. I used ochre as a groundwork, and I now find that no paint but the best white lead, tinted to stone or other colour, will answer, and this must be used with good boiled linseed oil, with plenty of litharge or dryers in it, combined with some turpentine, and laid on thin, and, as each coat dries, add another. Three coats will usually stand well, and these parts that wear off in those portions of the floor most subject to abrasion must be renewed each summer.

When once any housekeeper has found the

comfort of clean painted floors, she will never again be content with the old, dirty, unpainted boards. In wet weather there must be some mud carried in on the boots, and this is easily removed from a painted floor, by a little cold water. Soap or lye must on no account whatever be used—they totally destroy the paint, and all washes off. Do not forget; never use it, as your floor, if painted, will be ruined. The alkali at once combines with the oil of the paint, and the whole washes off like ordinary clay. I do not yet despair of inducing my wife to allow me to try again.

I was travelling in Tecumseth township some time last year, and took dinner at a house about four miles from Bradford. The kitchen floor was painted, and always had been, and the cracks were all puttied up tight, so that it looked like one board. I asked the lady of the house how she managed it, and from her I derived some very valuable information. She had every floor in her house painted; her husband had done them, and renewed worn parts each spring. She had met with an accident, an injury to the spine, which prevented any bending, so it was manifestly impossible to scrub, and painting was resorted to as a remedy, and a delightful one it proved. A little cold water and a patent mop-stick would remove all dirt quickly, and ten times as fast as a floor could be scrubbed. Some friends of mine, who liked the appearance of the grain of the wood, and yet determined to prevent greasy spots showing, oiled the floor well with raw linseed oil, put on quite hot, and two or three coats were used; but one coat, very thickly applied, provided the oil is very hot, will answer very well, and perhaps better, and as it penetrates into the wood an eighth to a quarter of an inch, it will not wear off like paint, and is equally easily washed. But in heating the oil, recollect never to heat it on a stove, unless it be far away from the house, for there would be great risk of fire from the oil flowing over. Build a small fire away from the house; allow no children about it, and test the heat of the oil with a feather from time to time. If it gets too hot it will burn a feather, and of course spoil your brush, but a little cotton mop is much better to use, and will not injure by heat.

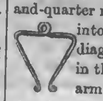
Remember, oil will reach a great heat, far above boiling water, or at all events sufficient to scorch a feather, at which high temperature it would prove dreadfully destructive if an accident were to occur; so be careful if you conclude to use it. I used it for some tables, and it far exceeds paint, as nothing will wear it off.

C.

CEMENT FOR SEALING UP FRUIT.—Take of rosin and brick dust a sufficient quantity; after melting the one, stir in the other. Be careful and not put in too much rosin, or the cement will not hold, and see that the brick dust is finely powdered.

Farm Gongs.

Calling on a friend during one of my wanderings through the north-western part of the County of Perth, I saw an excellent farmer's gong. It was made by taking an inch-and-quarter round bar of English iron, bent into the form of the accompanying diagram, and suspended by the loop in the centre. The length of each arm was about four feet, and when struck with a hammer, produced a ringing, clear sound, easily heard a full mile, and with the wind nearly two miles. This particular shape seems to be the best adapted for the production of sound; without actual experience no one would believe how very loud and clear it was. You will notice that the ends are turned round into a circle of about four inches diameter, and are gradually brought to a point, the iron towards the end being about half an inch in diameter, and the extremity rounded similar to the end of the finger.



This gong was found exceedingly useful, and a regular code of written signals was used, and a copy was always kept hung up close to the gong, so that any one wishing to call for meals struck in accordance; if the proprietor was wanted by a visitor, another series of blows was used; if fire or accident occurred, which required instant attendance, the gong was struck rapidly and forcibly with an iron hammer, in a way quite different from ordinary requirements. Fire did once occur, and it then became every one's duty to run rapidly towards the homestead. These signals being written down and explained, worked to admiration at the time of the fire; the gong certainly saved the house. All were out but the mother when the accident occurred, who, with her little baby, a week old, happened to be the only inmates, and from her recent illness was quite unable to climb the roof and extinguish the flames; but she could beat the gong, and did so, and the unusual signal for fire aroused all within hearing, who hastened to the house, and the fire was easily extinguished. But for the gong the homestead would have been burned to the ground.

The great difference between the sound of the blows produced by an iron hammer and wooden maul was used to especially distinguish the emergency of the case—the sound produced by the wood being heard as far, but not nearly so shrill and sharp.

The cost of such a gong would be trifling, and it would last generations. It ought not to be allowed to become rusted, and a little grease would effectually protect it from oxidation. In bending the circle for the eye, care must be taken not to allow any portion of the bent parts to touch. A small piece of wire will do to hang it to; rope will not answer so well. Common English iron is best, being much more resonant; in fact, the best iron will not answer, as its parts are formed more by lamination, instead of, as in English iron, being crystalline in its formation. The cost of the iron bar will be about $1, and the workmanship about another, and the convenience will amply repay the outlay.

C.

Saddles to Chimneys.

It may be of some use to those building to have a hint on the above very simple expedient to prevent the leaking that usually accompanies the building of chimneys in the roofs of dwelling houses. For the ordinary protection against such trouble, there is what is called flashing, made of tin, zinc or galvanized iron, that lines the gutter immediately behind the chimney. This flashing usually extends somewhere about four to six inches up the side of the chimney, and a similar distance underneath the shingles. Now, it is perfectly clear that during a thaw, and when slush snow lies deep against the chimneys, and the heat of the roof, derived from fires underneath, liquefies the substratum of such snow, it must rise until the force of the column is sufficient to push the mass out of the angle of the chimney formed by the roof, and, meantime, a stream of melted snow is forced back over the flashing, and the rooms below are, of course, inundated, and much mischief often arises.

Now, the remedy is easy and simple. It is to construct a second small roof, called a "saddle," behind each chimney, which being at opposite angles with the main roof, splits the slush snow as it slides down, causing each half to slip past the chimney, and so down to the edge. Much mischief is thus often saved, and at very small expense.

C.

Cider Making.

Those who have orchards of choice grafted fruit will find it more profitable to sell their fruit than make it into cider. But there are still great numbers of farmers, who have old orchards, the fruit of which is of little value except to manufacture into cider.

Like all other undertakings, that of cider making can be well or ill performed, and the profitable result of the process will greatly depend on the care and skill used in manufacture.

The process is usually a very simple one, and the introduction of portable cider mills has so greatly facilitated it that much more care and personal supervision can now be devoted by orchardists to the manufacture of cider from such fruit as may be of small value otherwise.

The first requisite to obtain a good article of cider is to have the fruit fairly ripe, and carefully picked over to reject all decaying and wormy apples. They are then put in heaps for some days to sweat a little, which will improve the flavour. The more sweet apples there are among the fruit used the better will be the cider, and it is always advisable to reject any that are excessively

sour or bitter, and mix in a fair proportion of sweet ones, if they can be had. The apples, when ready to use, are ground up into pulp. This done, the pulp is placed in the cider press, and the juice gradually squeezed out. The pressing must be applied carefully. The cider will be better and of a richer colour if the apples stand for a few hours after being ground or crushed, before applying the pressure to obtain their juice. The great advantage of slow and gradual pressure is that it makes the juice run pure and clear. It is best that the apples should not get mellow before being crushed, as they lose some of their strength and soundness by being allowed to ripen overmuch. It is of the greatest importance to be very careful that no water is allowed to be added in any way during the process of cider-making—the smallest quantity, especially of rain water, will spoil its keeping qualities. Therefore, all the operations must be performed under cover, that no rain may fall on the pomace while it is being pressed. Some grind up the pomace, and press it a second time, but the juice then obtained is generally acrid and gritty, and will spoil that obtained by the first pressing, if added to it. If this second pressing is done, the juice should be saved in separate casks, to be sold as inferior cider.

The casks to be used must be perfectly clean and sweet, and filled quite full, so that when fermentation begins, the froth can discharge at the bung. When the first fermentation abates, cover the bung close with something that can be lifted by the air that escapes during the after-fermentation. In a week, rack off the cider carefully into another clean cask, letting it run only so long as it comes out clear. In ten days more rack it off again, and in fifteen days give it a final racking off. When racked off clear the last time, the cask is to be quite filled, bunged tight, and stored away in a deep dry, frost-proof cellar, there to remain till used.

Perfectly clean, sweet barrels, must be used each time of racking. By attending particularly to the racking process, there will be no occasion for using any artificial substances for fining or clarifying the cider, as it will keep perfectly sound for a long time.

Earth Closets.

A correspondent from Rothsay writes for information as to the construction of earth closets, and wishes to know where he may procure them, and their cost.

The principle on which the apparatus is based is so simple that no complicated or expensive construction is necessary. All that is essential is a supply of dry pulverized earth. This may readily be procured, especially at this season of the year. The soil should be sifted, and, if necessary, spread out in the sun to dry, then stored under cover in any convenient place. A supply of this dry earth may be kept at hand in a box in a closet, by the side of the commode, or wherever it is required; and with an ordinary scoop, about a pint should be thrown over the fœces after each use. A pan or drawer, with a few inches of earth at the bottom, is the only receptacle required, and this can be emptied as often as necessary. For out-door privies, the surface of the earth itself forms a sufficient and a very fit receptacle, and the accumulation may be removed as often as required with a shovel and wheelbarrow. If properly managed, there is absolutely no unpleasant odour.

Though such homely appliances answer the purpose, still, where it can be afforded, some of the more elaborate contrivances, which embody the same principle, but save trouble in the using, are very convenient in the house, and especially in the sick room. There are various patents and different manufacturers claiming public patronage. An English company, under the name of the original inventor, "Moule's Earth Closet Company," have their representatives in this country, and Messrs. Cleverdon & Coombe, of Adelaide Street, Toronto, are their authorised agents for Ontario. This firm supply a very neat-looking earth commode, cased in cherry or other ornamental wood, for $27, or they will furnish the working part—all that is essential—without case, for $12 or $15.

So satisfied are we of the advantages of the dry earth system in an economic and sanitary point of view, that we expect to see its adoption become general; and would especially press the subject on the attention of those who have the management of public institutions, such as prisons, hospitals, factories, schools, and the like. Some trouble may be experienced in cities in procuring the requisite supply of suitable soil; but in the country and at farm-houses, no such impediment is presented, and the plan is not only the most efficacious, but the least troublesome that can be adopted. It should be practised by farmers without exception.

A CHEAP FILTER.—The *Manufacturer and Builder* gives the following directions for a simple filter to purify cistern water: Place on the perforated bottom of a box a piece of flannel, and on this some coarsely powdered charcoal, then some coarse river sand, and cover the whole with sandstone broken into small pieces.

REMEDY FOR ROACHES.—A correspondent in the *Country Gentleman* says that the use of powdered borax where roaches most do congregate is a complete disturber of their visits. The scattering of this sweet, clean and harmless white powder on the shelves, around hot water pipes, sinks, etc., is so repugnant to them, that they at once retire from the field. You, good housekeepers, who have such a horror of these pests, will be glad to learn this.

Agricultural Intelligence.

The Provincial Exhibition.

The Provincial Exhibition buildings have been undergoing large repairs. We are glad to say that the works are in such an advanced state that Mr. Grand, the architect, expected to hand the buildings over to the City Council by the beginning of September.

A new poultry shed, 176 feet by 26 feet, containing 380 coops, has been built on the west end of the grounds.

A new stable, 162 x 30, designed to accommodate 54 horses, has been erected on the north side of the grounds; and three other buildings which have been altered will furnish accommodation for 126 more horses.

On the north side of the ground, just east of the stables, four new buildings have been built for sheep. Two of them are 240 feet long each; the third is 150 feet long; and the length of the fourth is 130 feet. These, with two old buildings that have been altered, contain 290 pens.

On the south side of the road the whole of the old hog pens have been reconstructed. A new building, 180 feet long, contains 60 pens, one 90 feet long containing 30 pens, and one 192 feet long containing 64 pens, have been built. Altogether there will be 216 hog pens.

The three buildings which during the occupation of the Crystal Palace by the 13th Hussars were used as horse stables, have been converted into cattle sheds; and two new cattle sheds have been erected. One of these buildings is 162 feet, and the other 210 feet long. Altogether they contain 192 pens, 30 of which have been specially constructed for bulls.

Two forage barns, 36 x 24 feet each, have been built, one on the north side of the road in front of the horse stables, and the other on the south side in the vicinity of the cattle sheds.

A new shed for implements has been built on the south side of the road, just west of the cattle sheds. Its dimensions are 200 x 25.

For a horse ring, a portion of the ground has been fenced off in the shape of an oblong 400 feet long and 250 wide, with rounded corners. Six cattle rings have also been staked off.

In the Crystal Palace a new gallery rail has been put up; the floors and large doors at the four entrances have been repaired, and the tin work on the roof has been completed. The latter is to receive a coat of Canadian cement roofing. The fountain is being reconstructed in the centre of the hall, and pipes for supplying it with water will be connected with the cupola of the Lunatic Asylum. The carpenter's work has all been completed in the picture gallery, and this portion of the building is all ready to be coloured.

The hall for fruit and flowers has only to receive a coat of whitewash, which will be put on immediately. That portion of the building which it is designed to use for the exhibition of roots, &c.—the old riding school—has been put in proper condition. The inside of the Crystal Palace is not to be painted.

North of the Crystal Palace a ladies' saloon and reception room have been erected.

The fences around and the entrance gates have been thoroughly repaired; a new roof has been put on the building in which the offices are situated, and that and the outbuildings are being painted and plastered.

Royal Society's Show.

This exhibition opened at Oxford on the 11th July, with the trial of implements in the yard, viz: fixed steam-engines, mills, cutters, crushers and dairy utensils. It promised to be one of the best the Society has ever had, as well as the most extensive. The 406 stands for implements would accommodate about 2000 loads. At Manchester there were 384 stands. The 2,976 feet of shedding for cattle, 2,232 for sheep and pigs, is considerably in excess of the provision made at Manchester; but the 213 boxes for horses show a falling off, the number last year being 384. The stock-yard opened a week later, on Monday, the 18th July, and the show of both implements and stock remained open until the evening of Friday, the 22nd.

In the stock department, though the show of horses was smaller than usual, the classes in cattle, sheep and pigs were well filled, and considerably in excess of the numbers at the Manchester show last year. In the Shorthorn classes so large was the show that two sets of judges, one for males, another for females, were required in order to get through the awards in time. In sheep there was a large and fine show of Downs, of which Oxford Downs and Shropshire Downs were most numerous. In the pig classes there was but one recognized breed as a class, the Berkshires; the other classes being large and small white breeds; and the same of black breeds.

In Short-horns the display is said to have been a capital one, but the absence of any of Mr. Booth's stock was noticeable and commented upon. In Aged bulls C. W. Brierly, of Manchester, took 1st with "Bolivar," (25649), an Irish bred bull, that stood first at Manchester last year as a two year old. The 2nd prize fell to C. R. Saunders, Penrith, for Edgar (19680.) This animal stood in the same position at Manchester last year in the aged class. The third prize fell to T. E. Pawlett of Beeston, for "Baron Killerby."

In the two year old class, the 1st went to R. Bruce, Forres, Scotland, for "Scotsman," (27435) an animal that stood first at the Highland Agricultural show last year. The 2nd fell to Col. Towneley for "Baron Hubback," (25569), the reserve bull of last year in the yearling class. J. Wright, Penrith, took 3rd with "Man's Estate." In the yearling class Lady Pigot, of Branches Park, took 1st, Mr. Linton, of York, 2nd; and Lord Braybrooke 3rd. There were a large number of entries in this class, and much dissatisfaction expressed at the awards. The bull calf class was a very promising one, Mr. Dudding of Panton taking 1st prize, and Mr. Stratton of Burderop 2nd. In the aged cow class G. Game took 1st, Lady Pigot 2nd, J. How, Brompton, 3rd. In the two year old class Mr. D. McIntosh, of Havering Park, took 1st with a very noticesbly fine animal, Lady Knightly 2nd.; H. Dudding 2nd, J. How 3rd. The 3 year old class was a very moderate one, the 1st falling to J. A. Mumford, Thaine; 2nd to R. Eastwood Thorneyholme, 3rd to R. Stratton, Burderop. In heifer calves Col. Towneley got 1st, R. Marsh, Offley House, 2nd.

The Herefords were well represented, and Her Majesty the Queen succeeded in taking two prizes and a reserve. 1st for two year old bull, 2nd for aged bull, and a reserve highly commended in the cow class.

The Devons were very fine though not numerous. W. Farthing, J. H. Buller and Viscount Falmouth being the principal prize winners in this class.

The Oxford Prize Farm.

The *Agricultural Gazette* gives an interesting account of a visit to the farm of Mrs. Millington, to whom was awarded, by the Royal Agricultural Society of England, the first prize of £100 for the best managed farm in a specified district about Oxford, where the late exhibition was held. The following particulars of the course adopted will be interesting:—

"The rotation is as follows:—1st, roots, principally Swedes and turnips; 2nd, barley; 3rd, seeds; 4th, two-thirds wheat and one-third barley, including a portion of vetches. Catch crops are seldom sown, and the vetches occupy any portion of the seed land not thought to be in good enough condition to bear a corn crop. Vetches, therefore, on the farm, follow seeds, and are again followed by roots, and this brings any land out of condition into a good state. The rotation is also slightly deviated from by ploughing up some of the seed land early for mustard, afterwards to be followed, like the remaining seed land, with wheat: and the result is said to be two quarters more wheat than after seeds at once ploughed for the wheat crop. Glancing at each crop in rotation, we find that the cultivation for roots embraces one (deep as possible) three-horse furrow in the autumn, followed by steam cultivation in the spring. Up to last year, when Fowler's tackle was employed, Smith's cultivator had been in use. The land is afterwards worked with Coleman's cultivator, and the roots are sown with four cwt, of Hale's superphosphate, put in with water on the flat. Two-thirds of the turnip crop are eaten on the land with cake and corn, and one-third is drawn off for the cattle. No farmyard manure is ever applied to the root crop, but all is devoted to the seed land, and is now being spread over the land as a preparation for wheat, according to Lincolnshire usage. No top-dressings are used; all is put under the soil. Still, oil-cake in the form of sheep-dung is top-dressed on the land, and the condition of the farm must be well supported by the £1,000 to £1,200 worth of cake annually spent on the farm. There is also an expenditure of about £300 per annum in the form of superphosphate, no other purchased manure being imported.

"There is a flock of 400 Lincoln ewes maintained, and all tegs are either fatted or find their way into the flock. Ewes, culls, theaves and lambs constitute a standing flock of 950 sheep, and the clip is estimated at from two to three fleeces per tod. The lambs remain till late with their mothers, as above stated, and the first summer the management appears to be anything but forcing.

"Twenty-five calves are usually weaned every spring upon linseed gruel, and with the assistance of two cows. These cattle are kept until they are three years old, and are then disposed of at from £16 to £18 each. The stores receive from 2 to 5 pounds of linseed cake per day, according to their age, with a restricted amount of roots."

The Wheat Midge in England.

The subjoined extract from a recent English paper bears too plain evidence that the midge is doing mischief in some of the wheat fields of Yorkshire. This pest has of late years been but little known in any portion of the British Islands, nor indeed on the continent of Europe, to anything like the extent, duration or intensity, with which many Canadian and American farmers have unfortunately been too familiar. It would appear that the attack in the cases referred to is of a nature to awaken serious apprehensions:—

"A very serious matter to the Yorkshire farmer, and, indeed, to the country at large, has been detected within the last few days in some parts of Yorkshire. Some of the wheat crops were noticed to be prematurely changing colour, and upon examination it was found that the husks had no kernel, or that, where the kernel yet remained, it was fed upon by numbers of very small yellow maggots, which completely destroy it. In a field near Malton the pest has so overrun the crop that it is scarcely possible to find an uninjured ear of wheat. The forwardest crops are those most flyblown, and in most of the cases the centre rows of wheat in the ear are destroyed. Some of the merchants and farmers, since the discovery was made, have examined crops in various localities, and only in one case, so far—a spring-sown late crop, now in flower—have the caterpillars been absent. It is feared this pest is very widespread, and must seriously affect the yield. Some farmers remember a similar visitation some years ago during a dry, hot summer as at present."

Mr. Cochrane's Importations.

Bell's Messenger says:—Mr. Cochrane, of Canada, has been buying largely at Wetherby and Warlaby. In 1868, when he bought Duchess 97 for 1,000 guineas, he prevailed on Capt. Gunter to let him have another of the family before long. In the spring of the present year he wrote to ask for Duchess 103, which happened to be calved when he was at Wetherby in 1868. This animal Captain Gunter undertook to sell him when he came over. On the 6th July he arrived at Wetherby Grange; and on the 7th, Duchess 103 and Duchess 101 were bought by him for 2,500 guineas. The price of the "promised" one Mr. Cochrane considered was to be the same as that given for Duchess 97, so that the sum paid for Duchess 101 was 1,500 guineas. The *bona fide* sale money for the two is £2,625. Duchess 101 is a red with the usual white on the flank. She was calved in January, 1868, and is by Fourth Duke of Thorndale from Duchess 84. Duchess 103 (the promised one) is a rich roan, calved in August, 1868, and is by Fourth Duke of Thorndale, from Duchess 92, the dam of Duchess 97. These heifers are about four months in calf to Eighth Duke of York, the bull sold in the spring to Messrs. Allen, Tunnicliffe & Bell. At Warlaby, Mr. Cochrane possessed himself, at the cost of 1,500 guineas, of Lady Grateful, the own sister of Lady Fragrant, and, in the opinion of some competent judges, the best Booth cow alive. He also bought Mabel by General Hopewell, and a bull calf, a few months old (Royal Commander, by Commander-in-Chief, from Prudence) for 900 guineas.

Mr. Cochrane's purchases in Yorkshire were not confined to Wetherby and Warlaby. He dealt also at Killerby Hall, buying there Mr. John Booth's Lady of the Lake, a grand red and white cow of November, 1862, for which he gave 500 guineas; Queen of Beauty, red and white, of April 1868, and Fairy Gem, roan, calved in May, 1869. This heifer is twin to Fairy Pearl, which continues in the Killerby herd. The price of Queen of Beauty and Fairy Gem was 500 guineas. The three animals selected by Mr. Cochrane from Mr. John Booth's stock are from his Hecuba family, a very prolific and fine tribe. Lady of the Lake was by Knight Errant (18154), Queen of Beauty by the same bull, from Queen of the Glen by Valasco (15443); and Fairy Gem was by K. C. B. (26492), the son of Knight Errant and Soldier's Dream by Windsor (14013). Mr. Cochrane also bought at Killerby the roan heifer Milliner by Brigade Major (21312), from Lady Percy, bred by Mr. Serjeantson, of Camphill. At Braithwaite he secured a roan bull, and a three-year-old roan heifer of very great merit; the former, calved on the 2nd of September, 1869, Booth's Marksman, by Booth's Kinsman (25658), from Vernal Star by the Sutler (23061); the latter, Rosa Louisa, by Royal Booth (22772), from Rosa Sybilla by Baron Booth (21212), grandam Rose Wreath by Windsor (14013), great-grandam Rose Garland by Baron Warlaby (7813). She is in calf to Regal Booth (27262), the Vesper bull sold a short time ago to Mr. Crosbie, of Ardfert Abbey, Tralee.

Besides the animals mentioned in the preceding article as sold to Mr. Cochrane, Mr. John Booth sold, to Mr. Miller, of Canada, Gaicty, a roan heifer calved in 1867, and got by Brigade Major, from Lady Georgina by Knight Errant; and Madame Booth, a roan calved in July 1867, and got by the same bull, from Vanity by Velasco. Mr. Beattie, moreover, purchased for exportation to Canada, Charms, a red and white heifer of April 1868, by Brigade Major, from Virtue by Velasco.

The *Agricultural Gazette* furnishes the following additional particulars concerning Mr. Cochrane's recent Short-horn and other purchases:—

An interesting catalogue has been published by Mr. Thornton, of the cattle and other domestic animals purchased by Mr. Cochrane, of Hillhurst, Compten, Montreal, We have already noticed the Wetherby, Warlaby, Killerby, and Braithwaite purchases, but besides these, heifers were selected from the herds of Mr. G. S. Foljambe, of Osberton Hall; Mr. Barnes, Westland, Moynalty, Ireland; Rev. J. Storer, Helidon, Davantry; Messrs. Dudding, Panton, and Messrs. G. Garne, of Chipping Norton; J. Christy, of Boynton Hall; R. Plummer, Carlton Husthwaite; W. R. Bromet, Tadcaster, Atherton Chapel House; J. Logan, Newport; D. R. Davies, T. T. Drake, Beattie of Annan, Barclay of Knevil, and Aylmer of West Dereham. Mr. Thornton further informs us that besides these Shorthorns the exportations of 1870 contained a number of first-class sheep and black and white pigs. The sheep comprised the first prize pen of Cotswold ewes at the recent Oxford meeting, bought of Mr. J. Gillett, of Minster Lovell; and fourteen Cotswold ewes and five rams from Mr. H. Coles' stock, also successful at Oxford. A number of pure-bred Berkshire pigs were purchased at Her Majesty's farm, Windsor Castle. Seven pure-bred Berkshires were obtained from Mr. Heber Humfrey; several from Mr. Geo. Griggs, winner of the first prize for boars at Oxford; and four from Mr. Wm. Smith, of Bibury. The white pigs were purchased from Mr. J. T. Robinson, Mr. Aylmer, of West Dereham, and Mr. Atherton. There were also exported two pure-bred Alderney heifers and their calves, purchased immediately after their arrival in England; and a superior-hunting bay mare, four years old, bred by Mr. J. Beattie, Annan, got by Laughing Stock, out of Nanny, by Nimrod, well known in the Cumberland Hunt.

Estimates of the present wheat crop in California fall 2,000,000 centals short of last year.

Automatic Grain Binding.

The *Chicago Republican* gives the following account of the successful trial of a new machine invented by Mr. S. D. Carpenter, of Fond du Lac, Wisconsin, for binding as well as cutting grain:—

"The machine was purposely put to work on all kinds of ground, rough and smooth, hilly and level, to thoroughly test its adaptation to general use upon any kind of surface. It was also tried on standing grain, and in its worst as well as best forms—on tangled, lodged, grassy, weedy, clean and upright—long and short, thick and thin, green and over ripe. The trials were made on the farms of Mr. Sewell, Mr. Thompson, A. J. Birdsall, Mr. Gould, Peter Allard, and E. H. Galloway—gentlemen well known in that section, and whose places all lie within four or five miles of the city. The testimony of those who witnessed the trial is straight and direct that it nowhere failed to do its work—cutting and turning off thousands of perfectly tied bundles, and always in perfect shape where the straw was long enough to give place for the band. Out of 2,900 bundles, it is estimated that not over eight or ten would need rebinding, and this was so short that it was difficult to get the cutter far below the heads.

"One or two small accidents happened during the experiments, but were speedily repaired. It is not possible in a new and untried machine to calculate all the points of greatest strain, until they are demonstrated on trial. None of the discovered defects had anything to do with the principle of the binder, and were mere deficiencies in the strength of one or two parts. Three acres were cut in two hours and a half, without a bundle being missed, and it was believed that, in an ordinarily clear and level field, a span of horses would easily cut and bind eight or ten acres daily, and probably more."

With the addition of an automatic binder, which sooner or later we believe will be accomplished, the labour of harvesting will be reduced to the minimum, and proprietors will be comparatively independent of the extra and expensive help now required in gathering the fruits of the field.

The milk fever is proving quite fatal to the cows in some portions of Portage county, Ohio.

DRAINAGE OF SWAMP LANDS.—Contracts for the drainage of swamp lands in the Province, under the Act passed during the last session of the Provincial Legislature, have been awarded as follows:—In the Township of Grey, County of Huron, George Blain, Malton, $5,945 92; Township of Brooke, County of Lambton, same person, $22,467 99; Township of Mosa, County of Middlesex, Grant & Yorke, Toronto, $9,670; Township of Dunwich, County of Elgin, John A. Philpott, Iona, $9,018 64; Township of Raleigh, County of Kent, John Elliott, Brantford, $30,325; East Tilbury, same person, $24,200.

Agricultural Exhibitions for 1870.

CANADA.

QUEBEC	Montreal	Sept. 13-16
Peterborough (Hort).	Peterborough	Sept. 14.
Dundas	Morrisburg	Sep. 14-15-16
OTTAWA	Ottawa	Sept. 21-23
MIDDLESEX, West	Strathroy	Sept. 21.
Galt (Horticultural)	Galt	Sept. 22.
Tuckersmith	Seaforth	Sept. 22-23.
Blandford & Wilmot	Hamburg	Sept. 23.
Pilkington	Elora	Sept. 23.
Goderich(Horticultural).	Godcrich	Sept. 23.
Hay	Zurich	Sept. 23.
Biddulph	Granton	Sept 23.
Dereham	Tilsonburgh	Sept. 26-27.
YORK, North		Sept. 27-28.
WATERLOO South	Ayr	Sept. 27-28.
E. MIDDLESEX & LONDON.	London	Sept. 27-29.
HURON, North	Clinton	Sept. 27-28.
Muskoka Union	Bracebridge	Sept. 27.
Eramosa	Centre Inn	Sept. 27.
Turnberry	Belmore	Sept. 27.
PEEL	Brampton	Sept. 26-29.
Minto	Harriston	Sept. 28.
Nottawasaga	Nottawa	Sept. 28.
Howick	Wroxeter	Sept. 28
Roxborough	Moose Creek	Sept. 26.
Williamsburgh	Bouck's Hill	Sept. 28.
Smith	Bridgenorth	Sept. 28.
Sydenham	Dunedin	Sept. 26.
Minto	Harriston	Sept. 28.
HURON, South	Exeter	Sept. 29-30
GREY	Owen Sound	Sept. 29.
VICTORIA, South	Lindsay	Sept. 29.
WELLINGTON, Centre	Fergus	Sept. 29-30.
GREY South	Durham	Sept. 29.
Keppel	Hepworth	Sept. 29.
Hillier	Wellington	Sept 29.
Clifford	Clifford	Sept. 29.
Niagara	Niagara	Sept. 29,
Uxbridge	Uxbridge	Sept. 29-30.
Mara and Rama		Sept. 29.
Bluevale and Wingham		Sept. 30.
Fenelon	Fenelon Falls	Sept. 30.
Trafalgar	Oakville	Sept 30.
Blenheim	Drumbo	Sept. 30.
Saltfleet & Binbrook	Binbrook	Sept. 30.
Owen Sound(Hort)	Owen Sound	Sept. 30.
Minden	Minden	Sept, 30.
PETERBOROUGH, West	Peterborough	Sept 30-Oct 1
Elma & Wallace	Listowal	Sept. 30.
Nazsagaweya	Haltonville	Sept. 30.
Fullarton		Sept 30.
KENT	Chatham	Sept. 30. Oct. 1.
Mariposa	Oakwood	Oct. 1.
HASTINGS, North	Woodstock	Oct. 3-4.
OXFORD, North	Woodstock	Oct. 3-4.
PROVINCIAL	Toronto	Oct. 3-7.
Wellesley	Wellesley	Oct. 3.
NEW BRUNSWICK	Fredericton	Oct. 4-7.
Howard	Ridgetown	Oct. 4
Arran	Tara	Oct. 5.
Bruce	Underwood	Oct. 5.
Proton	Cedarville	Oct. 6.
BRUCE, North	Paisley	Oct. 7.
West Zorra		Oct. 7.
Brock	Sunderland	Oct. 7.
NORTHUMBERLAND, East.	Warkworth	Oct. 10-11.
PETERBOROUGH, East	Norwood	Oct. 10-11.
HALTON	Milton	Oct. 10-11.
BRUCE, South	Walkerton	Oct. 11-12.
OXFORD, South	Otterville	Oct. 11-12
PERTH, South	St. Mary's	Oct. 11-12.
ONTARIO, South	Whitby	Oct. 11-12.
BRANT, North	Paris	Oct. 11-12.
WELLAND	Welland	Oct. 11-12
WATERLOO, North	Berlin	Oct. 11-12.
WELLINGTON, North	Arthur	Oct. 11.
YORK, East	Markham	Oct. 11-12
Simcoe	Simcoe	Oct. 11.
Barton & Glanford	Glanford	Oct. 11.
Puslinch	Aberfoyle	Oct. 11.
Verulam	Bobcaygeon	Oct. 11.
Normanby	Ayton	Oct. 11.
Oxford	Duart	Oct. 11.
Harwich	Blenheim	Oct. 11.
Chatham	Wallaceburg	Oct. 11.
East Wawanosh		Oct. 11.
West Williams	Park Hill	Oct. 11.
Elma	Elma	Oct. 11.
Hibbert	Hibbert	Oct. 11.
VICTORIA, North	Cambray	Oct. 12.
BOTHWELL	Thamesville	Oct. 12.
HALDIMAND	Grafton	Oct. 12.
HASTINGS, West	Belleville	Oct. 12-13
WENTWORTH & HAMILTON.	Hamilton	Oct. 12-13
MIDDLESEX North	Alisa Craig	Oct. 12-13.
Arran	Tara	Oct. 12
Walpole	Stage Road	Oct. 12.
Blyth		Oct. 12,
Tilbury	Valetta	Oct. 12
ONTARIO North	Prince Albert	Oct. 13-14.
DURHAM, West	Bowmanville	Oct. 13-14
NORFOLK	Simcoe	Oct. 13.
PERTH, North	Stratford	Oct. 13-14.
ADDINGTON	Addington	Oct. 13.
Erin	Erin	Oct. 13.
Derby	Kilgyth	Oct. 13.
Walsingham	Walsingham Centre,	Oct. 13
Thorah	Beaverton	Oct. 13.
Lambton	Sarnia	Oct. 13-14
Grimsby	Grimsby	Oct. 13.
Kinloss	Lucknow	Oct. 13.
Artemisia	Flesherton	Oct. 13.
Kinloss		Oct. 13.
MONCK	Wellandport	Oct 14.
Windham	Windham Centre.	Oct. 14.
Esquesing	Georgetown	Oct. 14.
Toronto (Township)	Streetsville	Oct. 14.
Melancthon	Masonville	Oct. 14.
Aldborough	Rodney	Oct. 14.
Mono	Orangeville	Oct. 14.
Willoughby	Chippawa	Oct. 14.
South Monaghan	Bloomfield	Oct. 14.
Murray	Trenton	Oct. 14-15.
Camden	Centreville	Oct. 15.
Woodhouse		Oct. 15.
South Monaghan	Bailleboro	Oct. 15.
NORTHUMBERLAND, West.	Cobourg	Oct. 18-19
LINCOLN	St. Catherines	Oct. 18-19.
DURHAM, East	Millbrook	Oct. 18-19.
LENNOX	Napanee	Oct. 18-19.
Caledon	Charleston	Oct. 18-19.
Beverley	Bockton	Oct. 18.
HALDIMAND	Cayuga	Oct. 20-21
Cartwright	Williamsburg	Oct 21.
Clarke	Newcastle	Oct. 20-21.
Hope	Hope	Oct. 25-26.
Darlington		Oct. 27-28
Proton	Cedarville	Oct. 29.

UNITED STATES.

Vermont	Burlington	Sept. 6-9.
New England	Manchest'r N. H.	Sept. 6-9.
American Institute	New York City	Sept. 7-No. 2.
Ohio	Springfield	Sept. 12-16.
Iowa	Keokuk	Sept. 12-16.
Michigan	Jackson	Sept. 20.
Illinois	Decatur	Sept. 26-Oct. 1.
Wisconsin	Milwaukee	Sept. 27-30.
Woollen Exposition	Cincinnati	Sept. 21-Oct. 15.
New York	Utica	Sept. 27-30.
Northern Ohio	Cleveland	Oct. 4-7.
Kentucky	Henderson	Oct. 4-7.
North Caroline	Raleigh	Oct. 18-21.
Georgia	Atlanta	Oct. 19-26.

The Japanese begin to fear that California will obtain the bulk of the trade in silk-worm eggs. In one Japanese city, Yokohama, the trade amounts to $500,000 annually. But it seems that a very destructive parasite has attacked the worms in that country, and it is feared, instead of exporting eggs, it will soon be necessary to import eggs from California to Japan.

The cranberry crop of Cape Cod was much injured by the May frosts. The damage is estimated at not less than $150,000.

The *Ohio Farmer* says that 100,000 pounds of cheese are sometimes shipped in one day from Wellington, Lorrain county, in that State.

A sale of Percheron horses lately took place at West Roxbury, Mass., by the Society for the promotion of Agriculture. Eight animals were sold, two stallions and six mares and fillies—for which the aggregate amount realized was $3,630.

The St. Catharines' *Journal* says the peach crop in that section this year is a complete failure, so complete, indeed, that it is questionable if there will be one thousand bushels to sell. Mr. S. J. J. Brown, one of the largest producers in the district, last year sold over 300 bushels, and this year he cannot fill an order from London for seven baskets. The reports from all parts of the Peninsula is that there will be no peaches.

BEET SUGAR MAKING IN ILLINOIS.—The *Chicago Tribune* gives rather a gloomy account of the prospects of the Germania Sugar Beet Company, whose works are located at Chatsworth, Ill. The writer had just visited the farm, where out of 330 acres in beets this year, 130 are a failure on account of the drought, cut-worm and other causes, leaving 200 acres still standing, but of this area, only 70 acres are very promising. The farm comprises 2,400 acres, one-half of it being in Indian corn, and is managed with great care and skill by the superintendent, Mr. Periam. The 200 acres of beets, for example, are quite free of weeds, which is saying a great deal for such an area in that country. The management of the Company appears to have been less judicious. Many of the farm implements were imported from Germany at great expense, and have little merit for the saving of labor. The local authorities are also blamed for ungenerous and unjust taxation.

From a carefully made up report of the crops of Minnesota, it is ascertained that the wheat crop will only average 14 to 15 bushels to the acre, being 12 per cent. below the average for several years past. The falling off is owing to the drought and unequal distribution of summer rain. The area sown is about the same as last year, namely: Little over a million acres. Owing to the low price of wheat farmers have generally put less land in wheat than formerly. The wheat product of the State will probably reach 15 million bushels, against 18 millions last year. The diminished quantity is, however, compensated by the fact that nearly the whole crop of this year will grade number one. Barley is good, the crop having matured before the recent drought. Oats have suffered more than any other grain, and are light. There is a meagre crop, yielding scarcely 20 bushels to the acre. The corn crop is very large and satisfactory. A largely increased area was planted, and the season has been favourable to its growth.

Advertisements.

THE BEST,

CHEAPEST AND SHORTEST COURSE of study for Boys, Young and Middle-aged Men starting in life, or wanting situations, is at Eastman College, Poughkeepsie, N. Y., the oldest, and only Practical Business Institution. The only one providing situations for graduates. Address for Catalogue of 3000 in business. Board and Tuition $110. H. G. EASTMAN, LL.D., President, Poughkeepsie, N.Y.
v2-9-1t

Fruit and Ornamental Trees

FOR AUTUMN OF 1870.

WE invite the attention of Planters and Dealers to our large and complete stock of

STANDARD AND DWARF FRUIT TREES.
GRAPE VINES AND SMALL FRUIT.
ORNAMENTAL TREE, SHRUBS AND PLANTS.
NEW AND RARE FRUIT AND ORNAMENTAL TREES.

Descriptive and illustrated priced Catalogues sent prepaid on receipt of stamps, as follows:
No. 1.—Fruits, 10c. No. 2—Ornamental Trees, 10c.
No. 3—Green-house, 5c. No. 4—Wholesale, FREE.
Address ELLWANGER & BARRY,
Rochester, N. Y.
ESTABLISHED 1840. v2-9-1t

USE NONE BUT THE BEST!!

SOUPS AND BEEF TEA FOR THE MILLION.

STRENGTHENING Nourishment! Economy in house-keeping! LIEBIG'S COMPANY'S EXTRACT OF MEAT, the same that received the highest prizes at Paris, Havre and Amsterdam, and that is supplied to the British, French, Russian, Prussian, and other Governments. None genuine without the signature of Baron Liebig, the inventor, and of Dr. Max V. Petteokofer, delegate, on every jar.
J. MILHAU'S SONS, Company's Agents, 183 Broadway, New York. For sale everywhere. v2-9-3t

PURE BRED POULTRY.

FOR SALE,

A FEW pairs *superior* Houdan and Crève Cœur, bred directly from *imported prize stock*, Dark Brahma (Stephens' stock), Light Brahma, White Cochin, White and Grey Dorking, White Leghorn and Black Spanish, and Royal Java. Also a few Cockerels of each variety.
For further particulars apply to J. W. ACRES, Member Ontario Poultry Association, Box 143 Paris, Ontario. v2-9-1t

THE MORETON LODGE

COTSWOLDS.

Eleventh Annual Sale.

MR. W. S. G. KNOWLES has received instructions from Fred. Wm. Stone, Esq., to sell by Public Auction, without reserve, on

Wednesday, 21st Sept., 1870,

At Moreton Lodge, Guelph, Ontario, Canada, about

40 Cotswold Rams and Ram Lambs.
60 Cotswold Ewes, one shear & over.
10 Southdown Rams.
10 Southdown Ewes.

Luncheon at noon. Sale to commence at 1 *o'clock.*

Guelph is a first-class station on the Grand Trunk Railway, and Trains leaving Suspension Bridge, on Great Western, at 7 a. m., 12.20 p. m., and 5 p. m., reach Guelph respectively at 11.45 a. m., 4.30 p.m., and 9.45 p.m.; and Train leaving Detroit at 8 a. m. arrives at 4.30 p. m. v2-9-1t

THE

"LITTLE GIANT"

THRESHER

—AND—

SEPARATOR,

(FOR A FARMER'S OWN USE),

MADE AT THE

Stratford Agricultural Works,

IS CAPABLE OF

Threshing from 200 to 300 bushels of Wheat, or 400 to 500 bushels of oats per day.

IT THRESHES CLEAN,

And is not liable to throw grain over, having a peculiarly constructed shoe. It has

No Canvas, Elevators or Sieves,

Which in other machines are a continual source of annoyance. The Thresher is simple,

CAN BE WORKED BY ANYONE,

And can be driven with four or six horses. It takes up but little room on the barn floor, and

IS EASILY MOVED ABOUT,

Being placed on wheels. No machine made by me has given such universal satisfaction. It is the best Threshing Machine for a farmer's own use (or even three or four farmers in partnership), while the price places it within the reach of almost everyone.

Price of Thresher alone - - $105
Price of Thresher, with Horse-power Band Wheel or Jack and Belting, $185 *or* $190

Send for a descriptive circular.

JOSEPH SHARMAN,
v2-9-1t Stratford, Ont.

WINDSOR NURSERIES.

Pear Trees for Fall Planting.

ALL judges acknowledge that Pear Trees grown at WINDSOR NURSERIES are the best and hardiest on this Continent.

They are grown on heavy clay loam most suitable for the pear, as witnessed by the gigantic old French Pear Trees growing along the Detroit River. Pear Trees grown on light, sandy soil, of which most Nurseries are composed, are not so thrifty when transplanted.

The present stock of three-year old Dwarf and Standard Pears is the finest ever grown in these Nurseries, and can be confidently recommended as unsurpassed anywhere.

Fall Planting is best for Pear Trees, if only done early enough, as they can be safely lifted a fortnight or three weeks earlier than Apple or most other fruit trees; their young wood maturing earlier, the leaves can be easily removed without injury before lifting, which is absolutely necessary in early fall planting.

Orders for pears should therefore be sent in September, or first week in October (and separate from orders for other trees, which cannot be lifted so early), to allow the trees to be planted by the middle of October. The farther north, the earlier they require to be planted. The stock of four to six years old, bearing Dwarf Pear Trees, is very large and fine.

Catalogues sent free on application.

Trees packed carefully so as to carry any distance safely.

JAMES DOUGALL.
Windsor, 15th August, 1870. v2-9-1t

THOROUGH-BRED STOCK FOR SALE.

100 HEAD SHORT-HORNS, male and female, of all ages, including some fine Bull Calves, HEREFORDS, DEVONS AND AYRSHIRES; LEICESTER, COTSWOLD AND SOUTHDOWN SHEEP, including some fine Rams and Ram Lambs; BERKSHIRE AND SUFFOLK PIGS. Address
v2-9-2t J. MACKELCAN, Yorkville P.O., Ont.

Waltham Watches.

THESE celebrated watches have now fairly won the first position with discriminating watch buyers in Canada, because they are known to be more accurate, more durable and cheaper than any others.

When watches are made on a large scale, as at Waltham, it is true economy to have the best and latest improvements in the art, and it is for this reason that the genuine Waltham Watch greatly surpasses any English Watch which can be had at anything like corresponding price.

The Canadian market is crowded with Swiss Watches bearing names very nearly the same as the trade marks on genuine Waltham Watches.

To avoid imposition, buyers should demand a certificate of genuineness in every case.

For sale by all leading Jewellers in Canada.
v2-9-tf

GREAT SHEEP FARE AND RAM SALE.

AT GALT, ONT., OCT. 14, 1870.

THIS is the first of a series of Annual Fairs after the plan of the celebrated Sheep Fair at Kelso, Scotland, and as it is extensively advertized in U. S. and Canada, Sheep breeders will find it a most advantageous market for the disposal of their surplus stock and their Rams and Ram Lambs. v2-9-1t

VINEGAR. HOW MADE FROM CIDER, Wine, Molasses or Sorghum, in 10 hours, without using drugs. For circular address F. I. SAGE, Vinegar Maker, Cromwell, Ct. v2-9-12t

Steel Tooth Sulky Horse Rake

Will do more work, easier, cleaner, and better than any other. Does not gather dust in the hay. Will rake over rougher ground. Is light and strong, well-made and nicely finished. The teeth are fine spring steel, independent of each other, and will yield to pass obstructions. Took FIRST PRIZE at the Provincial Fair, London, 1869. For testimonials, &c., send for circular. As our manufacture for 1870 is limited, orders should be sent at once.

Responsible Agents Wanted in every County.

JAMES SOUTAR & CO.,
Foundry and Agricultural Warehouse,
v2-4-tf. *Chatham, Ont.*

NEW ARRANGEMENTS AND GREAT INDUCEMENTS.

Wishing to give more attention to the raising of bees and queens, I offer the following inducements till the close of the coming Provincial Fair:—

To any person sending $3, I will send my single-boarded hive with improved entrance, price $3, or an individual right, price $3, and my dollar book on bee culture, soon to be published; tickets will be sent for the book. For $5, both hive and right, or an Italian queen, and the book. For $10, or the highest bid above that, a right for six weeks, a township right and the book. For $12, or highest bid above that, a township right, one hive, and the book. For $400, or highest bid above that, a right for the entire Province of Quebec, with the exception of two or three counties that are sold; this right is worth $2,500. For $200, or highest bid above that, I will sell a patent for a Self-oiling Buggy Hub, lately introduced; specimen carriage to be seen at Brooklin, Ont.; this patent is worth $2,000. Sale of townships not to interfere with sale of hives upon the above conditions.

J. H. THOMAS,
2-5-tf. *Brooklin, Ont.*

FOR SALE,

SIX high-bred, Young Short-Horn Bulls, one by imported Crown Prince of Athelstane (21,612), 5,487; the others by the Imported *Pure Booth* Bull, "Knight of St. George," (26,544), 6,472.

D. CHRISTIE,
v2-8-4t. Paris P. O., Ont.

DOMINION OF CANADA

V. R.

EMIGRATION

TO THE

PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,

DAY LABOURERS,

And all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy and stock a Freehold Estate with the money needed to carry on a small farm in Britain. Good cleared land, with a dwelling and good barn and out-houses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. Farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants, by the Government, is

A FREE GRANT OF LAND

(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain, on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are not liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of abourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz.: Wm. Dixon, 11 Adam Street, Adelphi, London, W. O.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and E. Simays, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; J. B. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; E. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Brunswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. v2-2-12h.

BRAHMA FOWLS.

THE largest and finest in the world. Bred from the original *Burnham* importations from China, and same stock as those sent by Mr. B. to **Her Majesty Queen Victoria**, which have taken FIRST PRIZES at all the Fairs, both in England and America, wherever shown. For price and particulars send stamp, and address

v2-9-1t* P. O. Box 131 Melrose, Mass.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Sept. 12th, 1870.

FLOUR AND MEAL.

Prices of breadstuffs generally have tended downwards, in consequence, probably, of the extraordinary course of events in France. Large stocks are consequently held over, and, for the present, prices rule below what is warranted by the actual condition of supply and demand. The following are the latest quotations:—

Flour—Superfine, $5 to $5.10; Spring Wheat, $5 to $5.20; Fancy $5.30 to $5.40; Extra, $5.50 to $5.75.

Oatmeal—$4.50 to $4.60.

Cornmeal—$5.00.

Bran—$9.50 to $10.

GRAIN.

There is but little doing in Wheat, owing to the present uncertain state of the Market. Barley is realizing good prices, with an upward tendency. In other grains the market is quiet.

Wheat—Soules', $1.15 to $1.20; Treadwell, $1.10 to $1.15; Spring, $1 to $1.05.

Barley—Bright, 75c. to 88c., Inferior, 55c.

Oats—38c. to 40c.

Peas—68c. to 70c.

Rye—62c. to 65c.

HAY AND STRAW.

Hay has been in good supply, ranging in price from $10 to $13.

Straw—In fair supply, at $8 to $8.

PROVISIONS.

Trade is moderately active for the season, and stocks rather light.

Live Hogs—$7.

Pork—Mess, $28 to $29.

Bacon—12c. to 13c.

Hams—18c. to 20c.

Lard—12c. to 14c.

Cheese—New, 11¼c. to 12½c.; Old, 13½c. to 14½c.; Reesor's Stilton, 18c.; Royal Arms, 17c.

Butter—18c. to 19c. In rolls, retail, 27c. to 28c.

Eggs—13c to 15c. per dozen.

Dried Apples—6c. to 7c.

Hops—10c. to 15c.

Salt—Goderich, $1.50 to $1.60; American, $1.75; Liverpool, per bag, 75c.

CATTLE MARKET.

There has been a large supply for this season of the year. The following are Toronto prices, dressed weight.

Beeves—From $5 to $8.

Sheep—From $3 to $8.

Calves—From $4 to $7.

Lambs—From $2 to $3.25.

HIDES AND SKINS.

Hides—7c. to 8½c.

Calfskins—11c. to 12½c.

Lambskins—60c.

Wool—25c. to 30c.

New York.—*Flour*—Receipts, 10,000 bbls; sales, 8,000 bbls. at $4.90 to $5.05 for superfine State and Western; $5.15 to $5.80 for common to choice extra State; $5 to $5.75 for common to choice extra Western. *Rye Flour*, Quiet. *Wheat*, dull; receipts, 126,000 bush.; sales, 48,000 bush. at $1.07 to $1.09 for No. 2 Spring; $1.25 to $1.28 for winter red and amber western; $1.40 for white western. *Rye*, Dull; receipts 20,000 bush. *Corn*, Dull and lower; receipts, 59,000 bush.; sales, 41,000 bush. at 80c to 82c. *Barley*, Dull. *Oats*, Lower; receipts, 77,000 bush; sales, 29,000 bush. at 40c to 48c for Western; 47c to 51c for Ohio and State.

Contents of this Number.

PAGE.

THE FIELD:
Hints on Autumn Work 321
Beet Root Sugar 322
Draining at Low Levels; Lifting and Storing Potatoes 324
Rye for Early Pasturage; Thin Seeding of Wheat; Storing Roots for Winter Use; Salt as a Manure. 325
Norway Spruce for Hedge Shelter; Selection of Seed 326
Ploughing Stubble after Harvest; a Backwoods Farm—an Old Settler's Experience 327
Surface Application of Manure; Superphosphate of Lime 328
Hop Picking and Curing; Saving Corn Fodder; Remedy for the Turnip Fly; Cheap Farm Gate 329

STOCK DEPARTMENT:
Sundry Breeds of Swine 330
Cattle Feeding; Cattle-keeper's Table 331

VETERINARY DEPARTMENT:
Flies on Cattle; Flies on Horses; Ergotized Grass; Hoof Ail; Veterinary Queries 332
Swollen Udder 333

THE DAIRY:
Salting Dairy Cows; The Production of Cheese.. 333
Butter for Winter Use; Accounts with the Cows 334

POULTRY YARD:
Physiology of Eggs; Vulture Hock; Loss of Feathers 334

ENTOMOLOGY:
The Cattle Fly; Black Currant Worm; About Caterpillars 335
Entomological Queries and Replies 336
The Apple Curculio, (with cut) 337

APIARY:
Feeding Bees and Strengthening Stocks; The Honey Season of 1870; Ventilation of Stocks in Winter; Artificial Impregnation 338

CORRESPONDENCE:
Crops—Irrigation 339
The Potato Beetle; Lucerne, &c. 340

EDITORIAL:
Harvest and Weather Notes 341
A Day's Labour; Agricultural Premiums 342
Natural Method of Salmon and Trout Raising; Quebec Provincial Exhibition 343
Encouraging the Importation of Thoroughbred Stock; Galt Sheep Fair and Ram Sale 344

HORTICULTURE:
Fruit Growers' Association of Ontario—Report. 345
Strawberries; The Currant Worm; Window Gardening 346
Brantford Flower Show 347
Wind-Breaks; Bark Splitting; Pears; Washes for Fruit Trees 348
Marantas or Calatheas (with illustration) 349
Twice-Fruiting Raspberries; New Roses; Bark Splitting; New Raspberries 350
Pansies from Seed; Planting Apple Orchards—Distance Apart 351
Our Vines and Vine Trellis; Our Garden 352

POETRY:
Old Age; Art Thou Living Yet? 353

HOUSEHOLD:
Painting and Oiling Furniture and Floors 353
Farm Gouge; Saddles to Chimneys; Cider Making 354
Earth Closests; Cheap Filter; Roaches 355

AGRICULTURAL INTELLIGENCE:
The Provincial Exhibition 355
Royal Society's Show; The Oxford Prize Farm; Wheat Midge in England 356
Mr. Cochrane's Importations; Automatic Grain Binding 357
List of Agricultural Exhibitions; Items 358

THE CANADA FARMER is printed and published on the 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (POSTAGE FREE) payable in advance.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

P
AGRIC
C

THE CANADA FARMER

VOL. II. No. 10 TORONTO, CANADA, OCTOBER 15, 1870. NEW SERIES.

The Field.

Late Autumn Work.

The seeding of winter wheat, fall ploughing of stubbles and fallows, and gathering of the fruit and roots, having been properly attended to, there often remains a period of comparative leisure to the farmer during the latter part of autumn, which can be profitably employed in many ways.

THATCHING AND TRIMMING STACKS.—If this work is not done early in autumn, it should be at once proceeded with. It is a practice not followed in this country as much as it should be, and for want of it much of the outstanding crops, on farms where the barn room is insufficient, are seriously damaged by the late fall rains. Haystacks, especially, should be well thatched, otherwise several tons may be so much damaged by wet as to be practically worthless for fodder. It is a mistake often made to suppose that the cost of thatching is greater than the loss of what hay may become damaged by wet. There is no occasion for either expense being incurred or loss being suffered. Every farmer should learn and practice the art of thatching as part of the knowledge of his profession, and as being as great a necessity as to know how to perform any other operation on the farm. Thousands of stacks of hay are put up in the field where they are cut, in an easy, careless manner, and stand neglected till the winter is nearly over, when the hay comes out smelling with mould and dampness, and with half its value as fodder gone to the winds, simply from sheer carelessness. The stacks having been properly thatched, the next operation is to trim the sides all around so as to leave a close solid surface below the roof to the exposure of the weather. This can be done by using an old scythe blade, well sharpened, and fixed to a long straight handle. With this shave the sides of the stacks till they look smooth and solid, afterwards raking up and carrying to the barn or hayloft all the loose material shaved off. Stacks left unshaved often have a great quantity of loose stalks of hay hanging about them, which get soaked with and retain moisture after every storm, thus helping to injure the quality of the fodder for some distance into the stack.

Grain stacks seldom suffer from want of thatching, as besides being much more closely and neatly built than haystacks, they are usually threshed out as soon as the machine can be got to work, and the grain stored away in the barn, leaving only the straw to become a prey to the eccentricities of our changeable climate.

PASTURES AND MEADOWS.—These should not be allowed to be too closely fed down by stock, and as soon as they are shut up from them, the farmer should take his spade in hand and carefully go over them, breaking to pieces and scattering every little heap of cattle or horse-droppings he may see. If there is any fine well decomposed manure or compost to be had about the premises, it should be carefully scraped together, hauled out to the meadows, and scattered over the poorest spots as far as it will go. All bunches of grass that have been rejected by the stock should be cut with a sharp scythe, or bill-hook, and all roots of large perennial weeds dug out and carried to the compost heap.

DITCHES AND WATERCOURSES should all be cleared out before the heavy rains set in. Outlets must be made at such points in the meadows and fallows where the water is likely to accumulate and freeze up at the approach of winter into solid sheets of ice, should it find no means of egress. The cheapest and quickest way to do this is with the plough and scraper. In connection with this matter, we may ask if some one cannot invent a good, cheap, portable machine that will enable the work of scraping out the bulk of the earth from a ploughed ditch to be roughly, but cheaply done by horse-power, to be afterwards finished up neatly with the spade. The road scrapers in ordinary use are too wide for this purpose, where the saving of land is an object. Something that would neatly clean out the furrows at one operation in newly sown fields of grain, and yet leave no ridges of earth at the side, would also be desirable, and better than the plough for that purpose.

BARN-YARDS ought to be thoroughly cleaned out, and all the manure in them carried to the fields, either to be spread, or else composted in a large heap to be ready for application in spring. This done, the yard should be well covered with a good litter of straw; before the stock are turned into it to pass the winter season. Stables, byres, pig-styes and poultry-houses will be the better and healthier of a thorough washing and cleaning out, and a fumigation with burning sulphur to destroy insects, before the stock are to be housed in them for the winter.

FENCES should be put in good repair. This is easier and better done in the fall than during the busy and pushing season of spring. Begin with those that are in tolerable repair, needing only a few stones, a rail, or a board here and there; fix them up tight, and the stakes firm. Where rail fences are much out of repair and need re-laying, the work of pulling down the old fence and laying the bottom portion of it anew can be done now, and as soon as the first tolerable fall of snow enables a sleigh to run, the additional rails required can be drawn from the woods, the fence made to its full height, and if the ground be then frozen too hard to put in the stakes, they can be used to lock the corners, and so be ready on hand in spring as soon as the frost is out sufficiently to allow of stakes and riders being put on. On well managed farms, where the saving of land and keeping out weeds and briers from the fence corners is an object, straight fences, with the ends of the rails mortised into posts, or set between upright stakes, driven into the earth and tied together at the top with wire, on which the top rail rests, are much preferred to the ordinary zigzag style of the country, and as fewer rails are

SEP 7 1954 UNIVERSITY OF TORONTO

required in proportion to the length of the fence, they are cheapest in sections where rail timber is not plentiful.

Live Stock.—As the grass begins to fail, the cattle will need a little hay every day if it is desired to keep up their condition, and have them go into winter quarters full of thrift and health. The milch cows should be well looked after, and their flow of milk kept up as long as possible in the fall by artificial food, such as hay, cured corn fodder, cabbage and turnip leaves, bran mashes, &c. There is so much trouble and so little profit connected with winter butter-making, that unless a cow is an extra good milker during winter, or calves in the fall, many farmers prefer to dry all the cows off about Christmas, so that they may keep in fair condition on good hay through the winter, and be ready to come in full fleshed, with strong healthy calves, by the time spring returns, and the roots stored away are to be fed out to them. The calves of this season should be early attended to, and brought under shelter. They are too often left out till the last, and allowed to lose all their condition before they are noticed. Those who breed stock should remember that a constant state of thrift in the young growing animal is, next to good blood, of the first importance towards making good and profitable stock.

Sheep may remain out of the yards later than other stock, and being close and industrious grazers, will often keep up in condition till snow comes, especially when not too crowded on their pasture. They will pick out the corners of fences in stubbles and fallows, the borders of woodland, and eat much that other stock rejects. If improvement in the quality of the stock is desired, every faulty ewe should now be drafted out of the flock and sent to the butcher, or put up to be fed for Christmas mutton. Select to run with the flock the very best ram that your means will allow, and do not put him with the ewes too early, unless you have every facility and comfort in the way of food and buildings, for raising early lambs.

Swine.—The sows, and their fall litters of young pigs, should be well looked after, get comfortable warm quarters and abundance of food. Some cooked roots, such as potatoes, beets, or Swedes mashed up with some crushed corn or peas, will be good towards helping the sows to keep up their milk for the young ones, which should also get gradually accustomed to being fed by giving them, separate from the sow, what little milk or buttermilk can be spared from the house. There is nothing pays so well in pig breeding as keeping the stock in a state of constant health and growing thriftiness. Be particular to see that they have clean styes and abundance of clean dry litter to keep them warm. Fattening hogs had better be slaughtered and marketed as soon as they are well fatted. There is no profit in feeding beyond the point at which they will lay on fat in a fair proportion to the value of the food consumed. Extra fat hogs of great size are not now so much in favour with packers as they once were, nor is the price so much governed by size as formerly. Medium-sized hogs of 200 pounds, of the Suffolk, Essex, or Berkshire breed, ought to command better prices from ham and bacon curers than larger hogs of the old style land-pike, or of no particular breed, command from the pork-packers. Well-bred pigs always make the sweetest pork and most delicate ham and bacon, with a better admixture of fat and lean of fine quality than is found in common hogs.

Beet Root Sugar.

No. III.

EXTRACTING SUGAR FROM DRIED BEETS.

Another system which has been most extensively adopted in districts where the plantations of beet root were necessarily at considerable distances from the great sugar manufactory, and where fuel for the purposes of evaporation was scarce, has been the slicing and drying of the roots, followed by the extraction of the sugar by means of soaking the dried matter. To such an extent has this been carried, that in 1855 there was an enormous establishment in Gallicia, which in the growth and preparation of the roots, and the extraction of sugar from the dried slices, employed no less than 3,000 hands. This factory refined all the sugar that was grown within a circle of many miles in diameter. The roots were sliced and dried at fourteen different establishments located on the farm where the roots were grown, and not less than 1,200 people were employed in the cutting up and drying of the roots. By this method the liquor from the roots, macerated in a dry state, is found to contain fifty per cent. of sugar, and is free from a great many disturbing elements which are found to affect the actual juice of the root when produced from the recent bulbs. A great saving in fuel and trouble in evaporation is thus made, and the syrup produced is far purer than when the sugar is extracted at once from the recent roots. The manufacture of the sugar can go on at any season of the year, and the resulting pulp is equally good for cattle, and is obtained in far more convenient quantities.

This is one of the directions to which we must look for the small home manufacture of sugar and syrup, and the growth of demand for the root in Canada. This plan will suit many that a more elaborate one would not. The great majority of the farm population of the Continent of North America are used to the slicing and drying of apples, and other fruits; the slicing and drying of beet root is the same thing on a larger scale. One hundred pounds of beet root when sliced and dried weighs only eighteen pounds. This dried matter consists of nearly one-half sugar, and could therefore be carried from the farm to the sugar manufactory for a considerable distance, and if well prepared, would at the manufactory always command its full value, while the return teams could bring back a full load of compressed cake for use on the farm; thus the farmer willing to do so, could secure a far greator result in manure than his own crop would give. One ton of the dried roots would be equal to nearly six tons of green roots, so that it would bear carriage well.

The way the sliced and dried roots are treated for sugar is as follows: Several vessels are provided, and all are filled with the dried roots—the deeper the vessels are the better—water is poured on them so as just to cover the roots, making additions as the roots swell; the vessels are kept closely covered. As soon as the sliced matter is thoroughly softened, the contents of the vessel are drawn off and placed aside. The contents of the next are drawn off, and the liquor poured through the first, and this is repeated until the entire liquor has been through all the vessels. This plan takes up all the sugar in the least possible quantity of water, and the result ought to be a liquor containing about forty per cent. of sugar, which is then ready for evaporation into coarse syrup for the refinery, or it may be refined by the producer for his own use.

MAKING POTASH FROM FROM THE REFUSE.

In those manufactories where cattle feeding does not pay, or where the refuse from the pressed root cannot be sold, the refuse is burned in properly constructed furnaces, and yields an ash which contains a very large amount of potash, which is manufactured into the ordinary commercial article, and sold to the users of potash. It contains, however, a large proportion of salt, and although the ashes produce nearly one-half their weight in the mixture of potash and salt, yet if the salt is not taken out by chemical means, it must greatly deteriorate the value of the potash. A very large proportion of the potash used in France and Germany is produced from this source. This is, of course, a most dreadful waste for the land, and is only mentioned to show how the resulting matter can be utilized, where such utilization is necessary or advisable.

We have all long known that the leaves of the mangel crop when ploughed in make excellent manure for the following wheat, or other grain crop; the analysis of the ashes of the leaves shows the reason of this. The ashes of the leaf of the beet root contains fully fifty per cent. of a mixture of potash and salt. In the leaves of some kind of beet the potash predominates, in other kinds the salt forms the largest proportion; but all produce at this joint rate of the two substances.

No. IV.

PRACTICABILITY AND ADVANTAGES OF THE MANUFACTURE.

The writer does not mean for a moment to say that any one reading these articles can go into the manufacture from the information here given, and make good sugar. Such is not the intention of these papers. We want to draw the attention of the Canadian farmer to the great fact, that Canada, through the means of her agriculturists, can produce all the sugar required for the consumption of the Province, and that the doing so would put the proceeds into the pockets of the farmers, instead of, as now, being sent out of the country. The farmer wants another money-producing crop, and the proposed industry will give it to him. Too much cannot, therefore, be said in favour of such a project. Many will say, "Yes, it is like all new things, very well to talk about, but it won't answer;" and they may possibly refer to the disappointments lately inflicted on the farmer, and the public generally, by the attempted growth of flax on a large scale. Sugar is not like flax. The value of flax fibre is governed by the price of cotton, and the quantity used is also governed by the improvements in the manufacture of cotton goods; but for sugar no substitute has been found. Slave labour was at one time the governing power of the production of sugar, but slave labour has now happily ceased, and even if it had not, the French and Germans have shown that free-grown beet root sugar can compete with slave-grown cane sugar, and that the use of sugar is, within itself, the cause of a constantly increasing demand. No sooner does the price of sugar fall to a rate where it can compete with malt and grain in the manufacture of beer and spirits, than the demand for sugar is so increased, as at once to clear the market of all surplus supplies, and thus again restore the price to a remunerating point. In fact, the demand for sugar may be said to be practically unlimited, and as yet it has found no substitute to compete with it.

A friend of the writer, for whose opinion on these points he has a great respect, because the friend was bred up in the country, and on a Canadian farm, has rather thrown cold water on the proposed industry, because he says, "that the generality of farmers are not, and cannot be made, manufacturers;" that neither their means of information or habits of life tend in that direction, and that as a body they are incapable of dealing with a new industry like the one proposed.

Granting, (for argument's sake only, for I demur to the statement), that the general run of Canadian farmers have neither the intellect nor the means to manufacture sugar from beet root, there are none so ill-informed and stupid that they cannot cut the root up into slices, and dry it either in the open air, or in a kiln constructed for the purpose, and thus reduce the root to one-fifth of its bulk, so as to make it a profitable article to carry to the manufactory. But it will be said, "there are no manufactories." Granted again; but let farmers grow, and feed to their cattle, sugar beet, instead of mangels and turnips, and the manufactories will arise. Millions of capital are seeking investment, and a great industry, like the one proposed, would at once command a large proportion of it; but the capitalist cannot proceed until the sugar beet root is raised in plenty; whereas the farmer may as well raise the beet root as the mangel and turnip, and when he has done so, and thus shown the capitalist the fact that he can have any quantity of what he wants, manufactories will spring up like mushrooms, and we shall soon be exporters instead of importers of sugar.

The Canada Farmer is a temperance publication, and advocates neither the use nor the manufacture of spirits; but, notwithstanding that, people will have fermented liquors and spirits, and all the rough grain produced by the farmer is not sufficient to make what is required; hence, millions of bushels of Indian corn are annually imported from the States, to the great loss of our farmers, who, in producing sugar beet, would produce a substitute for the corn now brought in, and the dried beet would not be a more cumbrous article to carry to market for the distiller's purpose than barley now is, and would produce a greater price per acre for the land sown, with this advantage too, that if the results of the root are applied to the land as manure, an improvement, instead of a deterioration, in producing properties, is found; whereas, grain growing occasions a serious diminution in the producing power of a farm.

NO. 5.

HOME PRODUCTION.

Since this series of articles was commenced we have ascertained that the same views have been adopted in Europe. The sugar manufacturers find that the business is now well established, and the demand so enormous for the beet root sugar, that the practice of growing the roots and manufacturing the sugar as one business is not the most profitable mode of procedure. The roots are so bulky that they will not bear carriage far; the business of growing them and of making the most of them when grown is more the business of the farmer than the manufacturer; and the course of affairs now tends to the manufacture of the crude syrup or sugar directly on the farm, and the subsequent conversion of it into refined sugar at the manufactory.

For the purpose of carrying out these views, a system has been devised whereby the farmer can, on a small scale, bring the produce of the beet root into a state fit for the refinery. The author of this plan is M. Kissel. We have sent for his publications, and all others which bear on the point of the home manufacture of the syrup, the results of which shall in due time be made known to our readers. It is possible, however, that the present war may interfere with our intentions.

Meantime, there is another and most important phase of the subject which calls for special attention, and that is the fact that the cultivation of the sugar beet, when the results of the pulp of the root and the leaves of the plant are returned to the soil, cause a considerable and constant increase of fertility, until, from the statistics of the countries in which beet root sugar is manufactured, it is now found that the increase in the growth of wheat and other cereals is exactly in equal proportion with the increase of the root. Wheat, however, makes the best alternating crop.

This is not only proved by the statistics of the country in which beet root sugar is principally made, but the fact has long since been shown that by the growth of the beet, owing to the manure necessarily applied to produce the crop, and owing to the destruction of weeds which the tillage of the plant calls for, the land used for the purpose is increasing in richness and freedom from weeds, until a far higher grade of fertility is established than existed before the root was grown.

Land does not, under proper cultivation, get "sick" of beet root, as it does of other crops. The same fields have produced heavy and increasing crops of beet root year after year for very lengthened periods. In the beet root sugar countries, the same fields are used for that crop year after year without injury. The hauling of the roots to the factory is so heavy an item, that it makes it well worth the while of the manufacturer (who is also the grower of the root) to prefer what was at one time supposed to be the chance of injury to the land by repeated cropping, to the absolute expense of hauling the root from a distance; but this supposed injury by continual cropping with beet is now found to be a fallacy; the more beets are grown, provided the refuse is returned to the land, the better the land for crops both of beets and of wheat.

BEET ROOT AS A DESTROYER OF WEEDS.

This is another great argument in favour of the growth of the root in Canada; it would be the most destructive course of cropping for weeds that could be imagined. Thus, beets being a hoed crop, would leave the land clean for spring wheat the following year; but what would be better culture for Canada would be beets, followed by a partial summer fallow, then fall wheat. The stubbles of the fall wheat being immediately ploughed and manured, would leave the land in the finest possible condition for beets again, and this course would destroy, with the greatest amount of cropping and the

least amount of labour, every class of weed most dreaded by the Canadian farmer.

Any other grain crop could be grown instead of wheat where it was found advisable, and other crops could be interpolated if required; but the rotation of beet and grain crops really gives the land the benefit not only of the manure resulting from the refuse of both these crops in the barnyard, but the additional advantage of a green crop ploughed in, for the leaves of a beet crop are fully equal to the benefit to be derived from the destruction and ploughing in of a crop of clover.

One will naturally say, however, that the beet crop as food for cattle is deteriorated by the extraction of the sugar. This does not appear to be the case. The sugar, when extracted from the crop of either beets or mangels, does not seem to be missed by the cattle; they really do better on the refuse without the sugar than with it, and those who have observed the scouring effect of beets when fed to cattle, pigs, or sheep, in an entire state, will understand that the sugar seems to be too rich for the stomachs of the animals.

IMPORTANCE OF KEEPING UP THE BEST VARIETIES.

Another great point which calls for the popularization of the growth of beet root and the manufacture of the sugar on the farm, is the improvement in the *quality* of the root, more particularly in its increased production of sugar, and decreased production of mischievous elements, such as salt, &c. If the beet root sugar were manufactured by the people, we should have hundreds of thousands of intelligent people watching for and knowing of the results obtained from the different varieties of the root. The beet is biennial, and raised from seed, and, like all other plants so raised, is subject to great alterations both in size and quality. It naturally runs into varieties, and what the gardeners call "sports," many of which are either better or worse than the original stock. This is not the case with potatoes, or other plants or trees propagated by cuttings, but all plants produced from seed vary from year to year. If, as we said before, the manufacture of sugar were a pursuit of the people, each grower would keep close watch on his fields for special varieties, and where he found them, would propagate that variety.

The great manufacturer cannot do this. His time is too valuable, and his attention too much engaged with other matters to keep a close watch on the results of special roots, although he looks out sharp enough that his general average of sugar keeps up to the mark.

Not only is it a great object to get the varieties of root with the most sugar in them, but also those that contain the least salt, and until the discovery took place of the properties of the parchment paper diaphragms, which would separate the salt from the sugar, as mentioned in a previous article, the presence of salt in too large quantities was a fatal fault.

By popular observation these and other qualities are kept close watch on. Improvements are made, and faults avoided in a hundredfold greater degree than when the manufacture and growth were carried on on a gigantic scale.

Very much has been done in this respect already, even under the present management, and where observation is necessarily limited to comparatively few points. When the manufacture of beet root sugar was commenced in France, six per cent. was a great average to obtain, and often less was the result of all that skill and capital could be brought to effect. Now, twelve per cent. of sugar is an everyday occurrence, and large factories average on their year's work ten per cent.

Great improvement has also taken place in the quantity of roots raised per acre, as well as in the richness of the individual roots in sugar. Ten tons per acre of roots was considered a large crop; now, no grower is satisfied with less than double that amount. This increase of bulk will, of course, in a great measure, account for increase of yield in the sugar, but not altogether so, for experiment and chemical analysis has shown, year after year, that varieties of the roots may be found which increase in richness of sugar, as well as in size and yield per acre, and that in a far greater degree than was originally supposed possible.

Another great point has latterly been obtained, namely, the preservation of the pulp resulting from the beet root sugar manufacture. Originally, sufficient cattle had to be kept to consume the pulp in a recent state as fast as it was produced. Now, they preserve the pulp and the pulp cakes for one and even two full years, without difficulty or injury to its feeding qualities. The advantages of this course are too apparent to require comment.

A Backwoods Farm.

LIVING IN A SHANTY.

Our first day's work on the new farm was on the 21st day of November, 1859, and during a heavy gale of snow. We had previously hired a yoke of oxen, and a squatter had formerly chopped a small portion of the land.

We lived in a neighbour's shanty, or rather small log house, but we found boarding out would soon exhaust our small cash means, and besides, the want of our own household arrangements greatly impeded our work; so on the 30th day of the above month we commenced to build a regular lumberer's shanty.

There was no fireplace in it, but the fire was lit in the centre of the single room, and bed-places or berths were formed all round by boring auger-holes into the logs, and driving pins about four feet long into them, supported at the free end by poles at right angles; boards laid on these pins, and straw mattresses on the boards, completed our dwelling; and when the wind did not blow the smoke about, but allowed it to ascend quietly through the hole in the roof, there really was quite an air of comfort about the house, especially on stormy evenings, when the contrast between the cosy interior and the dreary scene without tended much to gild our shanty with some of the attributes of home. No woman had as yet been brought on the farm, and for a cook, a young Prussian or Dutch boy had been "caught," and installed in that office. His efforts were not very successful at first, but as they were principally directed to boiling pork and potatoes, and baking shanty cake, his failures were not so very apparent. It is true that we could not induce the young untutored to wash our plates very carefully, but as the light that enlightened our shanty all came down the chimney, or hole left for the smoke, we could not so distinctly detect the deficiencies of the scullery operations.

Time went on as the chopping progressed, and we became somewhat fastidious in our food. We must have sweetcake and shortbread, and dried apple pies—and here failure stared our Dutch cook in the face. However, he improved about as fast in the culinary art as our tastes became more fastidious, and to this day (for he lives with us now, a grown man, but never since a cook) we often laugh at former failures in cooking.

We had some ludicrous episodes, and some accidents during the winter whilst chopping. Amongst others, there was a sort of play or trick that old bush hands are fond of playing off on the greener and more recent visitors. Of course, stories of wild animals and adventures, in the long winter evenings, were the order of the time; and these were especially indulged in when, as it often happened, some intending settlers called in to ask the particulars of locations, and to stop all night out of the storm. Then the fun commenced. After some wonderful stories of wild beasts had been told, and corresponding relations of prowess given, and just when all the new comers were breathless with expectation and excitement, an unearthly noise was heard outside—something between a roar, a scream, and a bark. All started to their feet, especially the emigrant visitors, and rushed out of doors—these last gentry, however, nervously following in the rear.

The noise was perfectly well known to the initiated to be produced by a piece of thin maple wood, about six inches long, and attached to a piece of deerskin, tied to a pliant springy handle, about four feet long. When this instrument is properly made, and whirled round and round the head, it gives out a most unearthly sound, of wonderful modulation, according to the skill used, and one that may well frighten any new comer in the woods, especially one who had been well prepared beforehand from some such source as story-telling. Two or three of our men were provided with these machines, and were running hither and thither—of course out of sight—in the storm, whilst the uninitiated rushed after them with all sorts of weapons, urged on by those in advance to come quickly. The roars would be first on one side and then on another, as the wild animals were supposed to be flying before their pursuers—and many were the tumbles and rolls the visitors got in the deep snow, or over stumps and logs, while endeavouring to overtake or avoid the supposed wild beast. At last it was generally the case that some one discovered the trick, and, of course, all returned to the shanty laughing and joking the new-comers on the strange noises to be heard in Canadian back-woods, and holding great investigations over barked shins and broken or bleeding noses.

CHOPPING THE LAND.

The winter of 1860-1 was very severe; the snow lay nearly four feet deep on the level, and was solid and hard; and as we were too late in beginning to get underbrushing done, as it ought to have been, before the snow fell, we were compelled to chop away at the trees and leave the underbrushing until the following spring. This, of course, was bad management, but we could not control the elements, and therefore had to do the best we could.

We chopped that winter 120 acres of land, having hired four choppers in addition to our own strength—active, wiry little Frenchmen they were, and beautiful choppers—no better men exist, as adapted for such work, than the Lower Canadian Frenchmen. Always gay and merry, and never discontented, all they want is pork and potatoes, tea and some sweetcake shortened with pork fat (provided they are dressed by a decent cook), and a gay Frenchman will willingly go for nine months or more far into uninhabited wilds, and only look forward to returning amongst his fellow men once a year for about a month. The wonder is how such small men can chop so much, and such large trees; and many times in after years I have noticed such and such trees as having been chopped by Ba'tist or Jean. Those stumps that winter were often left six feet high, so deep was the snow when they were chopped. About this time one of our oxen was missed, and a search was instituted in all directions, but without effect. He was seen only an hour before being missed, and no track could be found where he had left the chopping. We made a circuit round our camp in the deep snow, and thought it certain by that means to find his path of exit, but to no purpose, and after a fruitless search we gave it up, wondering how it was possible that he could have got away. When the spring opened, and the snow melted, our doubts were ended. Within twenty rods of our shanty the ox had fallen, having caught his hind foot in the fork of a fallen tree, the wood of which was not more than about four inches in diameter. The foot was held fast, and the poor brute was starved and frozen to death almost close to the house. In his struggles for freedom he had chafed all the flesh from the bone.

Spring set in that year very early, and remarkably dry, during the month of May; and about the first of April we turned all hands on to cutting underbrush, wherever it was possible to get at it. The whole chopping was gone over, and all the small stuff chopped, and on the 25th of May, 1860, we set fire to the new fallow.

BURNING BRUSH.

On the 25th day of May, the day we had determined to fire the brush, we all prepared touchwood and pine slips, with matches, and every small combustible material we could obtain. The great art is to fire the whole at once, and to select a dry, hot day and "half a gale" of wind. Such a wind and such a day we had, and about 10 o'clock, when the dew was all off—a very important point—and everything hot and dry, we commenced to set fire. We passed at intervals of about fifty feet all down the windward side of the chopping, and built little fires. All were engaged at once, in order to have as tremendous a fire as possible. In about half an hour the flames began to gather strength, and truly it was a grand sight. The wood, leaves, and decayed stumps here and there being all dry, caught like touch-paper, and the wind being very high, in an inconceivably short time the whole fallow was one mass of flames fully fifty feet high, roaring like some furious volcano, and sweeping all before it. We had no neighbours, and we knew the fire would not run in the neighbouring green woods so early in the year, so we allowed the flames to have their own course and full sweep, and by evening the finest and best burn I ever saw was the consequence. All the brush was completely burned, and much of the small timber. Where the windrows of the tops were all thrown together—sometimes two hundred yards long, a solid mass of brushwood—a lane of twelve to twenty feet wide was entirely burnt up, so much so that we could and did drive waggons over and through the new fallow to collect the ashes for potash making.

This burn was of immense value to us. About one-half the timber and all the small stuff was entirely destroyed, burnt, and completely cleared away, leaving only heaps on heaps of ashes. The art of chopping land to advantage consists entirely in arranging your windrows in this manner: You first throw down some great unmanageable tree—probably an elm—and carefully chop down all the branches, causing them to lie as smoothly as possible, so as to have the brush-heap solid at the bottom. You next throw into and on to this heap all the adjoining timber, at various angles, just as they incline or otherwise towards the pile in question. Practice will enable a good chopper to do this in a wonderful manner, especially when he takes into consideration the direction of the prevailing heavy winds of the district—a very important point. Of course, in this direction the windrow must be made, and a very little inclination of the tree-top will cause the tree to go where it is wanted. If, as sometimes happens, an obstinate tree will persist in going the wrong way, and will fall away from the heap, instead of on it, it is of little consequence, as this will be in the next row, parallel, or thereabout, to the first.

I have seen, on our land, fallows so well chopped, and the trees so adroitly thrown on each other, that you could have—and I have many times—walked for a hundred yards, without stepping off this immense long brush-heap. Some of our men could never attain the art, while others could do pretty much as they chose with the trees. In chopping and clearing land, all you want to lighten your job one half is, in addition to good chopping, a perfectly dry time and a strong wind; and you had better wait a month or two in the spring than attempt to burn until these conditions occur. Then your work for the rest of the job is light in comparison to being without such a burn. If, on the other hand, as it often happens, you try to burn some ill-piled brush-heaps, with trees thrown every way, and the fire just runs through without consuming the brushwood, your labour is trebled at least, for the fire never runs a second time, and it is "pick and pile" brushwood and chips for weeks and months, until you are sick of it.

This happened to us in the next hundred acres we had chopped, and it cost us $9 an acre to log it, as will be related in its proper place. Of course, we gradually acquired experience, but at first we should have miserably failed but for the counsel and help of a friend of ours who visited our shanty the first winter.

CLEARING LAND—GRUBBING THE TREES.

Amongst other trials to clear land to better advantage, that of grubbing the trees once occurred to us as not only practicable, but advisable. We reasoned thus—that the stumps were a greater impediment than the roots—that if the tree could be grubbed out at once, using the tree itself as a lever to tear up any roots that might be difficult to cut off, the land would be more easily worked. We accordingly laid out two acres as a trial piece, carefully keeping an account of the time. We did not find it a successful experiment. The time it required was too great. Five trees could be cut down while one was being grubbed out. Certainly, when finished, the land looked almost

like old land—no stumps anywhere, but when you attempted to plough there was scarcely any improvement over the ordinary difficulties of working new land; and this land to this day is not more easily worked than stumpy land, so far as roots are concerned. True, the stumps are certainly not there, but the roots are not more decayed than those attached to the stumps. In fact, from some cause, I do not think they are as much so, and this point has often been a matter of wonderment and a scource of much thought.

I have a theory, that the decay of stumps is to a great extent due to a perpetual attempt of the sap to continue to perform its regular functions at its appointed season, and the natural evaporation from the drying up of that part exposed to the air furnishes a certain demand. The roots, having no such demand from grubbed stumps, do not therefore become alternately wet and dry, as others ordinarily chopped do, but remain always wet. This opinion is strongly supported by the condition of some stumps under a sheep shed, that I examined and dug out a short time since. They had been covered up with manure, and all but the very top was thus kept quite wet, and had been so during nearly ten years that had elapsed since they were chopped. The top that protruded above the manure was quite decayed, but the roots were absolutely green—yes, quite green. I showed many of the smaller fibrous roots to some intelligent people who happened to be present, who were equally surprised with myself. There was no sprout whatever, nor ever had been, from this stump, as the shed was built in 1861, one year after the land was chopped, so there was time enough for decay to have affected the roots, unless some preservative action had been going on, attributed to the moisture of the manure. The kind of timber was 13-inch basswood and beech.

We cleared out our farm-yard last year, in a part that had been uncleaned for eight years, and found the stumps, so far as the roots were concerned, quite decayed, and easily jerked out by the oxen, but these had been exposed to wet and dry, sun and air, and consequently to a continual ascent and descent of sap, which probably accounts for the difference.

I had a visit the other day from a friend of more theoretical than practical knowledge, and he actually was about going on new land with the full conviction that trees can be grubbed out, and the land thus cleared, and that the advantages of this course would far overbalance the cost. Of course, I used all my experience in persuading him to think twice before doing anything of the kind, and at all events to try one acre before buying a tract of five hundred or six hundred acres with the certain conviction in his own mind that it would succeed much better than the old plan. He, however, was so bent on his own plan of operations that he left me to look at the tract in question.

BURNING AND BRANDING.

We now came to the blackest job of all, but at the same time, one which I always took great delight in, namely, the firing log-heaps. The art consists in first having a good, well and closely piled log-heap, and next in having a good breeze of wind to assist the combustion. The end of the heap is the best part to light first, provided the wind suits, as the fire more readily gets a thorough hold. The attendance on the heaps must be continued into the night, otherwise there will be some that spread out whilst burning, and then do not consume so well.

I always found more difficulty in leaving the fallow when fully alight than the wish for rest could overcome. It seemed such a pity not to keep punching away first at one heap, then at another, as the attendance thereby given so much improved the fire—and then a succession of such jolly bonfires—and I always did love a bonfire—and these were such good ones—so it always ended in my working out in the fallow, literally enjoying it, often after ten o'clock at night; and next morning, when the sun rose, and all the heaps were partly burned, and looked almost out, I almost regretted leaving them at all. However, after branding up and again punching in the outside logs, they were soon all smoking again; but the effect of the fires is for less exhilarating by day than by night. With us, we had such a quantity on fire, that I determined not to follow this course again, but to log for about three days, and if the weather proved dry, to burn and brand up this piece before firing any more. This plan gives more time to collect ashes, which, of course, must remain ungathered as long as the heaps are burning. We sometimes raked them as fast as the heaps consumed, but it took a great deal of time, and when we came to carry them there was usually fire remaining in them, which endangered the waggon box. So, on the whole, we found it better to deal with about five acres at a time, and by using hand-barrows to carry the ashes into heaps of sufficient size to make a waggon-load in a place.

We logged in this way all the summer of 1861, and our one yoke of oxen did the whole of it, and without accident, except to one which strained his foot, which laid him up for a few days; and the other was sick a while from being overfed with ground grain. A quart of melted lard poured down his throat soon restored him, and he continued to log steadily until the frost came. Of course, we drew aside the rail-cuts for fencing as we progressed, but in this respect we were careless and improvident. We thought twenty to twenty-five acre fields would be small enough for so large a farm, but it was a great mistake; they ought not to have exceeded ten or twelve acres each. And, when we found too late the inconvenience of such large fields, we also found that the rail timber from which to construct the fences to make the fields smaller was all burnt up, and we suffer from the neglect to this day. We certainly saved some first cost, as twenty-five acres do not require nearly so many rails as two twelve and a half acre fields, but it was a serious mistake notwithstanding.

Another was, we did not make "worm" enough to any of our fences. We thought to make the rails go as far as possible, consequently, the fine rails, being all hardwood, were during rainy weather as slippery as eels, and the least wind would level rods on rods of them. In fact, it was hardly possible to get over one of these unstaked and unrider ed fences in wet weather without throwing down several rails.

Another error was, we did not attend sufficiently to the entire burning up of the large swamp timber, such as elm, basswood, and hemlock. Many of these were ultimately left, and when the smaller timber was consumed, there was nothing to burn them up with, and they continued to cumber the fields until some stumps were ready to come out, when we succeeded in consuming these old stumbling-blocks.

Another evil is, to run over the swamp-holes and frog-ponds, leaving the fallen timber in them. We had better far have hauled it out while we were at it, and made all clean, than allow them to remain unburnt. In the one case we have productive pasture land, which can be cut for hay, and often produces the heaviest crops, whilst in the other, we have a pestilent mess, that remains year after year until grown up to willows and sedge, affording no food for cattle, and proving a regular breeding place for mosquitoes.

C.

Silver Beet as a Manure Plant.

I noticed in a recent number of The Weekly Globe an account of the growth of a plant called Silver Beet, and a recommendation to plough it under as manure. I at once procured some seed to test the rapidity of its growth, and, as advised, I soaked it in warm water twenty-four hours, and sowed it in drills two feet apart, scattering the seeds along the drill at about three inches from seed to seed.

As the weather was very hot and dry, and I feared the seed might not come up, the sowing was delayed until the 18th of June, which I considered very late; the ground, however, was good, and the sowing was made immediately after the heavy rains we had at that time. The depth at which the seeds were buried was about two inches—not more—as I was advised to be most particular in that respect. The seeds did not come up very regularly, but were somewhat delayed in their germination by the hot dry weather.

It was therefore the first day of July before the plants could be seen in rows. They were hoed once, and now (Aug. 13th) they entirely cover the ground, and are twenty inches high; nothing is visible but a mass of green leaves—no doubt entirely calculated as a green crop for ploughing under. I am quite convinced that such a quantity of green leaves and fibrous roots ploughed under would afford an immense mass of the very best manure. There would not be any serious difficulty in ploughing them under although so much in quantity, as a furrow drawn deeper than usual between the rows would form a trench quite sufficient to receive the mass of green stuff, and the one following would entirely cover it all in.

Chemical analysis shows the leaves of all the beet tribe to possess the power of extracting large quantities of potash from the soil, and when in its turn it is again returned to the earth in a form that the following crop can at once assimilate, a most excellent yield may safely be relied on.

There is one great advantage in growing the Silver Beet over many others, as no fly or worm has yet shown any inclination to attack it, and the young and tender plant is allowed to grow in peace. When we come to consider that about six weeks have sufficed for the growth of a mass of green stuff, so abundant that there is some difficulty in burying it, we can hardly over-estimate the advantage it is likely to possess as a green manure crop.

In raising seed for another year, nothing more is required than to take up a few of the roots in the fall, and keep them in a dry place, or packed in dry sand quite free from frost, and plant again about the latter end of April, when a most abundant crop of seed will be the result. For many years in England I was accustomed to grow mangels as a crop to precede wheat, and although we rarely succeeded in getting the wheat sown, (after the removal of the mangels), before the very last of October, and sometimes the beginning of November, we never failed in having forty bushels of good wheat per acre. The great crop was entirely attributed to the mangel leaves being ploughed under at wheat sowing; the land was, however, of good quality. No leaves were allowed to be eaten by cattle, and thus carried off the land. All were ploughed well under after the removal of the roots. I find the roots are fibrous, not bulbs as in mangels, and are consequently not fit for food.

C.

The *Michigan Farmer* says the economy of hay caps has been demonstrated at the Michigan Agricultural College Farm this season. They are made of cotton, are four and a half feet square. Even when there was no rain it was found that hay cured under them was superior in quality to that exposed to the light and sun. They are also used on wheat.

Barn-yard Manure.

To the farmer there is no manure so valuable for general use as that made in the barn-yard, because such contains every kind of plant food which has during the previous year been removed from the soil. There is no form of investing money so profitable to him, both in the quickness of return, and the high rate of interest received, as that upon manure. It is certain that the constant application of manure will directly double his returns from his land, and the benefits of such application will be carried on from year to year, in the superior richness of that portion of each crop which will again and again be used for the nourishment of his fields.

Let the farmer beware how he runs into debt to the grocer and the tailor, how he invests his hard-earned means in shares and stocks, but he need never be afraid even to become indebted for manure. Returns from such an investment are rapid, and the rate of interest high. Let us loan our money thus to nature, and she will repay us with generosity and without fail.

The principle that the best manure is that made under cover is now generally endorsed by the most intelligent of our farmers—indeed, of agriculturists all over the civilized world.

The following table, being the result of experiments made in England, giving the composition in pounds weight of a heap of manure at four different periods, will convey to the reader an idea of the changes which took place in the composition of manure from exposure :—

	Put up November 3rd.	After 5 months April 3rd.	After 9 months August 29th.	After 12 months November 15th.
Weight of manures in lbs.	2838	2026	1994	1974
Water	1877.9	1336 1	1505.3	1466.5
Dry matter....	960.1	689.9	488.7	507.5
Soluble organic matters..	70.38	86.51	58.83	54.04
Soluble inorganic matters..	43.71	57.88	39 16	36.89
Insoluble organic matters	781.07	389.74	243.22	214 92
Insoluble inorganic matters	114.94	155.77	147.49	201.65
Total nitrogen	18.23	18.14	13.14	13.03
Equal to ammonia	22.14	22.02	15.96	15 75

I have heard many farmers speak of the fear they had of giving their land too much barn-yard manure. No doubt, this is an error that may be committed, but from my experience, I cannot say that the fault of the Canadian farmer is often that of overfeeding, either to his land or to his stock.

I have often seen crops of wheat heavy in the straw, but light in the head, and I have in most cases traced the deficiency in the fulness of grain to the general fault of inferior seed, without perceiving that the abundance of straw was any greater than should be borne by a fair crop of wheat.

The feeding of cattle upon the farm, therefore, makes the most useful of manure, for the solid and liquid excrements that are sopped up by straw, &c., contain all those fertilizing elements that have been extracted from the actual plant, and that are in a state in which they may be returned with maximum advantage to the growing crops.

A most important point in the case of barn-yard manure is the prevention, as far as possible, of the transmission of noxious weeds to the field.

It is a great mistake to throw seeds away *by themselves*, for the birds pick them up, and again distribute them over the fields.

The manure heap may be made a means of destroying such weeds.

Let seeds be thrown in with the manure in such a manner that when the piles are made the seeds shall be well covered, the heat of manure heaps will destroy the germinating power of nearly all, and if any seeds do escape death by this process, after growing in the richness of manure they are weak and spindling, and far more easily killed than such as have been carried directly to the fields by birds.

The richer the food, the richer the manures, and this should be carefully considered in applying to different crops or to different soils.

Manure is to land what food is to the animal, and the application should be carefully regulated to suit the requirements of land under many different circumstances.

The subject of intermixing clay, peat, and such substances, with barn-yard manures, has been so well handled in your columns of late, that it would be superfluous to revive the subject. I would only say that a succession of layers of clay and a coating of clay outside the manure heap, act very beneficially, not only in preventing the escape of valuable gases, but also of that heat which will accelerate the necessary chemical combinations, will destroy the germinating power of many noxious weeds, and will hasten the reduction of the manure to that state in which it will most readily be taken up by the land to which it shall be applied.

C. E. W.

From South Australia the accounts of the crops are very favourable. The principle of a great measure of land reform has also been settled, which permits land at £1 per acre being paid for in yearly instalments of 2s. each, with favourable conditions of settlement, cultivation, and improvement. This measure is regarded as most favourable to the future interests of South Australia, placing it in a position to attract settlers equally with the other colonies.

Sowing Timothy in Autumn.

Thore is quite a scarcity of timothy seed this year for next year's sowing, especially in the States, consequently those who have been able to gather any will probably obtain double the price it usually sells for. But the worst of it is that many fields seeded last spring failed to take, from the want of moisture shortly after seeding time. The same may be said of clover. This could easily have been avoided where the seeding down to grass is to be done on winter wheat, by sowing the timothy seed in the fall. There is much more certainty of getting a good catch with timothy, and also orchard grass, when it is sown in the autumn, than there is in the spring seeding. Timothy is perfectly hardy, and the young plants can stand the winter as well as winter wheat. Should a spring or early summer drought occur, the plants will be well rooted, and have a sufficient hold of the soil to push forward early and rapidly, and are then much less likely to be scorched out. Clover cannot well be sown in autumn here, but if the land has been fall sown with timothy, and it is desired to have an admixture of clover in the meadow, the clover, if sown early in spring, will take better from the slight mulching it will obtain from the young timothy plants, than if it had no protection from the hot sun in May and June.

Wheat Midge in England.

To the Editor.

Sir,—The fears entertained in England of the appearance of that scourge of which we have had so fatal an experience, are, I fear, but too well founded. In the latter end of July I was asked by a farmer in Gloucestershire to examine his wheat, which had assumed a sickly colour and shrivelled form On examination I found the midge (*Cecydomia tritici*) very generally spread over the field. It is to be hoped that, should this pest become such a scourge as it has been in America, the farmers of old England will take a lesson from our young experience, and treat the midge to a general dose of coarse wheat.

C. E. W.

Ancaster, Sept. 3rd, 1870.

Insect Depredations.—If I were to estimate the average loss per annum of the farmers of this country from insects at one hundred millions of dollars, I should doubtless be far below the mark. The loss of fruit alone by the devastations of insects, within a radius of fifty miles from this city, must amount in value to millions. In my neighbourhood the peach once flourished, but flourishes no more, and cherries have been all but annihilated. Apples were till lately our most profitable and perhaps our most important product, but the worms take half our average crop, and sadly damage what they do not utterly destroy. Plums we have ceased to grow or expect; our pears are generally stung and often blighted; even the currant has at last its fruit-destroying worm. We must fight our paltry adversaries more efficiently, or allow them to drive us wholly from the field.—*Horace Greeley.*

Stock Department.

Housing Stock in Winter.

There can be no question that in such a rigorous and changeable climate as ours, shelter for stock during six months of the year, from the 1st November to the 1st May, is absolutely essential to insure their thrift and healthiness.

In arranging the yards and buildings, however, to that end, there are some important points that seem to be too generally overlooked by our farmers. One of these is the dividing and locating them so as to arrange that the different classes of stock do not intermix, to the injury of one another. If horses are bred on the farm, the colts need a good yard for exercise, with comfortable close sheds fitted with feeding racks, to run into at nights and stormy days. The young cattle need a separate yard and sheds with racks to themselves, where they will have room to move about, and not be kept in continual fear of the old cows and oxen, which should be kept separately in their stalls. Sheep should never be among other stock, but have large yards with good sheds open to the south, if open at all. In any case, buildings that are used for young stock or sheep must be constructed as to allow of good ventilation at all times when necessary.

Another point often neglected is the supplying light to animals that are kept in close confinement most of the time. We have frequently observed that horses kept in dark stables are always more subject to shying when they are driven out, than those that have well lighted stables. One can easily conceive that a horse brought out from a dark stable into the bright glare of a winter sunshine is partially blinded, and, in fact, we believe much of the blindness common among horses is caused by constant sudden exposure to light every time they are taken out of their stables. Nature has given light as one of her blessings conducive to health, all creatures having the organ of sight largely developed, and to deprive any of them of the means of exercising that faculty is sure to result disastrously in some form or other. It is noticeable how much less shying there is among horses in the summer than in winter, which is probably due to their being more out of their stables during that season, and even when in their stalls, the doors are left open during the day time.

Still another point is that of constant cleanliness, both inside and out of their shelters. We believe much of the diseases prevalent amongst stock in winter can be traced to the want of cleanliness and pure air. Every yard and shed should be kept well covered with clean straw, and every stable and byre so arranged that the stalls and floors can be readily cleaned out, and the animals kept from accumulating filth on their bodies. What else could be expected than a general unhealthiness and want of thrift in animals, that are living in an atmosphere that is constantly impregnated with bad odours and impurities. Let the stables and byres be well dried during the day, when it is not excessively cold or blowing snow drifts, by leaving doors and windows open for several hours. In the case of animals being fed up for the butcher, it may not be objectionable to keep them in partial darkness, in order to induce them to lie down and keep in a state of rest as much as possible; but with all others there should be a good supply of light allowed during the greater portion of the day, and if the cows can be turned out of their byres by themselves, for a few hours each fine day, they will enjoy better health.

Lastly, we too often see that the amount of space allowed for winter quarters to stock is altogether too small for their comfort; yard room, especially, is often very much cramped and confined, as if the land on a farm was of as great value as that in a city. It is better to have yards of good size, and, after clearing them of the winter's accumulation of manure in spring, plant them with cabbages, beets, mangels, or carrots, reserving only the stable yard for summer use.

The amount of stall room allowed is also often far too small, and the animals are crowded together in such a manner as to make them feel anything but comfortable. The idea of carpenters and builders, who generally put up the stalls, seems to be to make them all of one uniform size, the dimensions of which are dictated by some arbitrary rule or caprice, whatever it may be called. They do not seem to think the size of the stalls should vary, so as to accomodate different sized animals, but that, like the bed of Procrustes, the same space should fit all comers. It seems to be overlooked that the stalls or spaces set apart for each beast may just as well be either all of such a size as to accommodate comfortably the largest ox, or be graduated in size in order to economize space, and yet each give comfortable space for the animal to occupy it, according as it is large or small. The more ease and comfort the stock can obtain when tied up in their stalls, the more contented they will be, and the better they will thrive.

Mr. Duncan's Stock Sale.—An extensive sale of valuable animals, chiefly Shorthorns, took place recently at Towanda, Illinois, on the farm of Mr. Duncan. The sale, says the *Prairie Farmer*, attracted one of the largest assemblages that has ever been gathered on a similar occasion in the West. Ten bulls were sold, including the celebrated sire of the herd, Minister, (a portrait of whom appeared in the Cadada Farmer), who was purchased by Mr. Wilson, of Kansas, for the sum of $1,760. The other bulls fetched sums varying from $370 to $700. One cow sold for $1,500; two others for over $1,000, and the remainder at prices from $100 to $700. The total sum realized for twenty-seven head was $15,500. A fine lot of hogs were also sold, and brought from $60 to $187 per head.

Mellendean Leicesters.

We have repeatedly given a short account of the annual sale of rams at Kelso; and in another column will be found a brief notice of the last, which took place on the 9th of September. This sale, from small beginnings, has attained to the most important place of ram sales in Scotland.

Prominent amongst the competitors at this sale for the past thirty years have been the Mellendean Leicesters, being part of a breed of sheep which are somewhat of a distinct type, now called "Border Leicesters," for which the neighbourhood of Kelso and the valley of the Tweed have long been famous, and of which our engraving, from a photograph by Gray, gives two very beautiful specimens. The Mellendean flock was owned by the late Thomas Stark, who had a keen eye for fine shapely animals, and whose flock, from the small foundation of ten good breeding ewes, has gradually progressed through every stage of improvement up to its present state.

MELLENDEAN LEICESTER RAMS.

At the sale at Kelso, on the 10th September, 1869, the Mellendean sheep, forty in number, brought the highest average of 1751 offered, that average being £16 9s. 4d. sterling, and one sheep bringing £109 sterling. The average of the Mellendean sheep for the year 1868 was about £7 above 1869, when the total number at sale was also larger than in 1869. At the Kelso sale competition amongst breeders is very keen, and it requires all that science, skill, and a liberal expenditure can do to keep pace with others, or retain the prominence already gained. In these respects the Mellendean sheep are well looked after. Some of their leading features are their lustrous fine curly wool, so much in request by manufacturers of the finest woollen fabrics, their soft and mellow handling, which bespeaks them kindly feeders, pure white heads and sprightly eyes, well-set ears and strong muscular necks, splendid breasts, clean short shanks and standing wide on their pins, lengthy bodies and well-sprung ribs, and the whole frame indicating a grand carcass for both mutton and wool. Many of these features are distinguishable from our engraving, though the sheep themselves should be seen to be judged of properly. This flock, indeed, is so highly appreciated that not only the rams are in high request, but the draught ewes of the flock are eagerly purchased by breeders wishing to improve their own stock.

Any of our readers taking an interest in such matters, that may happen to be in Scotland about the time of the Kelso sale, say about Sept. 10th or 15th of each year, would do well to make a point to be present at it and judge for themselves of the Border Leicesters; and if in the neighbourhood at any other time, we are assured by the liberal proprietor, will be welcome to see the Mellendean flock, the shepherd taking much pride in showing them to strangers. He talks to his pets like children, and has a separate yarn to tell about each, even his dog hob-nobbing with them on friendly terms. The locality, too, has many attractions in natural beauty, and is associated with much that is chivalric in song and story.

Fattening Cattle.

The unusually short supply, and consequently high price, of beef during the past year, owing mainly to the demands of distant markets, and comparatively cheap means of transportation to them now offered through the competition among lines of railway concentrating towards the great centres of commerce and manufacture, render the feeding of cattle for the purposes of the butcher a much more profitable operation to the farmer than it has hitherto been. He no longer needs to depend on his neighbours, or a small local

demand, for the disposal of what his farm can furnish in the way of flesh meat, but will find men who make it their business to act as factors between the producer and consumer at all times, going through the country, or attending local fairs, ready to buy up at fair prices every head of live stock they can find in a condition suitable for the butcher.

The age at which cattle can be profitably fattened will depend much upon their breeding, and the manner in which they have been reared. Steers or heifers, having from half to three-fourths Shorthorn or Hereford blood in them, and that have been kept in a thrifty growing condition from calfhood, are usually sufficiently advanced to be put up to fatten when from thirty to thirty-six months old. Pure-bred animals of Shorthorn or Hereford blood may be profitably fattened at an earlier age. A cross of one-half to three-quarter Devon blood on common stock makes an animal that can go into the stalls at two years old, if it has been kept in good growing condition. Common native cattle can rarely be profitably fed for the butcher till they are four years old. If cattle are put up to fatten before their growth has sufficiently advanced, so as to bring them near their full capacity of laying up substance, much of the food given them, instead of going to make them fat, will be wasted in adding bone and muscle, which could have been obtained more cheaply by giving them time to complete their development on ordinary keep. Besides, the effort to fatten an animal when in an immature state can only result in producing meat of a very inferior quality, and commanding a much less price than if the same animal had been kept on longer until its frame had become solid and well knit together, its muscles developed to their full capacity, and its stomach capable of digesting and assimilating a larger amount of food than is actually required to sustain the ordinary growth and wear and tear of life, without derangement of its vitality.

There are every year great numbers of young cattle sold to the butcher, or slaughtered by farmers, and their carcases brought to market at the close of the grass season, when they are in a state of development that renders their flesh of an intermediate quality between veal and beef, without the tenderness of the one or the rich juiciness of the other, but as flavourless and worthless as any flesh can well be. It is sheer folly to sacrifice such animals for the sake of the paltry saving of a few months' food, when by keeping them over one winter more they would bring nearly double their present value, and be fit to make into beef that is full of rich savoury juices.

Stall feeding cattle, judiciously conducted, presents to the grain grower the most efficient, cheap, and desirable method of keeping up the fertility of his farm, and the most profitable means of disposing of his surplus hay, roots, and coarse grains. The manure made from such cattle, were it all the profit derived from the process, would be amply sufficient to repay the farmer for his trouble; while the hay and grain so consumed would sell in the shape of beef for a higher price than if it had been taken to market; for it must be borne in mind that in turning roots, hay, and grain into meat, we get the price that they would bring in a higher and more distant market, without the risk and expense of transportation to it, while the same articles, hay and roots especially, would be governed as to price by the local demand of the immediate neighbourhood where they were grown, which is often very low. The greatest demand, and consequently highest prices for beef, now extend over a much longer period of the year than formerly, the facilities for transportation by rail rendering it possible at all times to furnish a constant supply of fresh meat to distant markets, when formerly much of the summer consumption was restricted to meat slaughtered in late autumn, and salted down for future use. This has in a measure rendered the winter fattening of cattle, in order to supply a spring and summer demand, much more certain to yield a profit than formerly, and greatly increased the demand for meat, now that it can be so readily supplied at all seasons in a fresh state. In a future article we may discuss the matter further, and give the best methods of profitably feeding cattle for the butcher.

Selecting Stock Rams.

In order to breed sheep successfully and profitably, much depends on the judgment used in selecting the rams to be used in the flock. It should be the aim of every farmer to endeavour to raise the standard of the stock on his farm, in an even and gradual manner, by using male animals of as much higher a degree of excellence each year as his means will afford. He must also keep in view a certain object in breeding. If he is so situated that he can profitably raise sheep solely for the purpose of turning into mutton, he will find his profit in using Leicester or Southdown rams of pure blood to put to common ewes. If wool is his object, he will find the use of Cotswold rams best attain the end in view, as that class of wool not only commands the highest price, but is also more certain to be of uniform quality, and to yield a high average of weight of fleece throughout a flock.

We will suppose a farmer has a flock of ordinary common grade sheep, and desires to improve them. He can begin the first year by using a ram lamb or two, costing from $10 to $15 each. This will carry him through two seasons, by which time the ewe lambs of the first season will be gimmers, ready to take the ram. He should then get one of higher quality, say a shearling or two, costing $20 to $30 each. Two seasons after this he needs one of still higher quality, and of as good size as can be had, costing, we will say, $50. After this he should change his rams every year, giving a good price to get a first-class animal from some well-known and reliable ram breeder. In all cases it is particularly advisable not to use as stock-getters in his own flock any of the male animals bred in it. All the ram lambs in the flock not intended to be sold off as lambs to the butcher should be castrated, and raised as wethers until such time as the flock has reached the highest degree of excellence it is capable of attaining, when the ram lambs, if then good, may be kept for sale as breeding rams, and will probably bring good prices.

It is a poor policy to continue breeding and feeding sheep that will realize but from $3 to $5 each from the butcher, when by a little extra outlay in the way of procuring male animals as stock-getters that will raise the standard of the flock, he can obtain from $6 to $10 each for what he has to sell, and in a year or two more, by perseverance, the flock can be raised to such a high standard as to readily command from $12 to $18 or $20 each for what can be fed up for the Christmas or spring markets, or sold as breeding stock. It costs no more to feed such animals so as to keep them in good growing store condition than it does those of inferior quality. The great aim should be to obtain animals that combine good size and form with early maturity and aptitude to fatten, and in the case of wool growing, the animals that can carry the largest fleeces of the true quality of the breed are the most profitable to keep.

Stallions for Common Labour.

There are very few geldings in France. The reason is, the stallions are not unmanageable, vicious, and dangerous as work horses, but docile, obedient, easily managed, and intelligent. There is nothing in the nature of things to prevent our having the advantage of the greater toughness, strength, spirit, fearlessness, safety, (in being less liable to take fright), freedom from disease, and longer serviceableness of the stallion over the gelding, were it not that we and our ancestors have so abused the temper of the horse, that his progeny exhibit, among the unaltered males, vicious and treacherous tempers, such as make them unsafe and unreliable as work horses, even under the kindest and most uniform treatment.

The English thorough-breds, unexcelled for spirit, endurance, fleetness, and wind, are the most vicious of all horses. They came from the gentle, docile, affectionate Arab, and it is only the training and abuse of the English stableboys and grooms, we verily believe, which have thus, in the course of generations, ruined the temper of the most noble of the breeds of horses. Its blood is infused through all our common stock, and to it we owe most of the characteristics for which we value our horses. Where thorough-breds have been bred for generations under

different treatment, as under the handling of the negro grooms and riders of the Southern States, their tempers improve, and extraordinary exhibitions of vice are rare, even among stallions. The habit of using stallions is followed a good deal by French Canadians, who send to this country so many of the so-called "Canuck" horses. These horses are small, close-knit, and powerful, and when entire, tough beyond comparison. Wherever we meet with them, they are praised for easy keeping qualities, great endurance, and freedom from ordinary ills, and are seldom complained of as vicious. Do we not, in our ordinary treatment, sacrifice a great part of the usefulness and serviceableness of the horse, in rendering him more tractable, more liable to disease, and less intelligent and spirited? Is it not worth while to make the experiment oftener of rearing stallions for labour, though it require more patience, gentleness, and kindness, on the part of those who handle them, and repeated floggings, administered with a will, to any stable boys who dare to pinch or tickle, or to ruffle their tempers? —*American Agriculturist.*

Kelso Ram Sales.

The Kelso *Chronicle* says that the sheep show and ram sales at Kelso took place on the 9th of September, and secured, as usual, a large attendance of spectators and buyers. Some of the prize animals were purchased for Canada. The Mertoun lot of Lord Polworth once more obtained the first place, the highest price realized being £100—a very high figure, but less by £9 than the top price for the Mellendean lot last year. The highest average this year was £22 14s., against £16 9s. last year. Miss Stark's Mellendeans were late in being put up, a circumstance which, no doubt, reduced the competition and the prices, but notwithstanding, they excited a keen rivalry amongst the bidders, and obtained the second highest average. The total number of entries was 1737.

What it Takes to Soil a Cow.—Desiring to know just how much saving there is in soiling, and having an excellent piece of clover, in its best estate, just coming into blossom, we measured forty square rods and commenced feeding it to seven cows and four horses; it fed them liberally, fifteen days. The two succeeding years we tried the same experiment, the animals differing somewhat, but with the same result—in each case we found forty square rods equal to the summer feeding of a cow. But these crops of clover were very heavy, and could not always be equalled; yet allowing for contingencies, we came to estimate one-half acre of land in good condition, in clover, as adequate to summering a cow; thus making soiling equal to from four to six times the space in pasture. We tried afterwards much larger experiments—soiling thirty-five cattle and horses, and using some land in much poorer culture, but we found the saving, comparatively, quite as encouraging. We selected one hundred acres—barely sufficient to have pastured this number of animals—ten of it in clover, oats, and sowed corn; we fed them from the 20th day of May to the 1st day of December. We had a surplus of sixty-five tons of hay, after feeding these animals six months and ten days, which sold in the barn for $972. It required six hours' labour per day to soil them, which amounted in those cheap times to $65. One hundred loads of manure were saved in fine condition, worth, at least, $50 more than the droppings of these animals in pasture. The expense of cutting and housing the sixty-five tons of hay was $1 50 per ton, or $97 50, which added to the labour of soiling makes $162 50, leaving $359 50 as the net gain of this soiling experiment.—*Live Stock Journal.*

Stock and Crops for Farms.—"A Northern Farmer," in the *Mark Lane Express*, gives his opinion on this subject as follows: "In this paper much stress has been laid on the necessity of keeping a heavy stock constantly on the farm, yet some care must be exercised to provide a proportionate amount of food, and to have it for every season, otherwise, instead of profit, the year's transactions will end in loss. The farmer who is overstocked, is always in trouble; in spring he must stock the pastures too early for the want of house food, and in autumn he must permit the cattle to remain in the fields until, through exposure to bad weather and insufficiency of food, they become greatly reduced in condition. If to avoid this he begins early on his stock of roots and hay, he is run out, very probably, in March, the very season when the lengthening day and the chilly cutting winds cause increased consumption, and a struggle of some kind must be made to hold them over on purchased food until something can be picked up on the pastures. The full supply of food tells on every animal, but of course more noticeably on those whose produce is being daily turned into cash. The widely-distended bag of a well-fed cow as she comes from the pastures to be milked, and the sense of relief which she unmistakably shows when the process is completed, is both a source of gratification and of profit, and is in wide contrast to the limp, half-empty appearance of the udder when the cows are in bare pastures, and have to roam about continually in quest of food. No amount of care or good management on the part of mistress or maid can make up for this oversight on the part of the master, and when, on making up the year's receipts, he finds the amount to be little over half what it reasonably might have been, he can only blame himself for his shortsightedness in keeping more cattle than the food he had provided was able to sustain. Breeding ewes tell also very forcibly by the return which they give, whether they have been liberally fed or not—any deficiency in food telling at once on the milk, and the lamb in consequence ceases to grow, and becomes stunted and profitless.

Veterinary Department.

Nephritis, or Inflammation of the Kidneys in Horses.

Although the kidneys act very powerfully in horses, fortunately they are not so liable to acute inflammation as some other organs. The causes of this ailment are varied. Among them may be mentioned prolonged and severe work, or the abuse of diuretic medicines, as in giving large doses of rosin and saltpetre, which is often done with the intention of improving the condition. Continued irritation has an injurious effect, weakening those highly sensitive organs, and rendering them liable to disease. Another common cause is the eating of hay that has been improperly made, and certain grasses that possess diuretic properties. It may also be produced from injury, as in connection with a sprain of the psoas muscles, or in saddle horses from carrying heavy and continued weight. It also occurs in connection with some diseases of the respiratory organs, which have a tendency to arrest generally the various secretions of the body, and it is occasionally induced by the application of cantharidine blisters over a large surface of the body. The active principle becomes absorbed and over-stimulates the kidneys.

The symptoms of nephritis are more or less fever, according to the severity of the attack. The pulse is quickened, the coat is staring, and the surface of the body changes suddenly from hot to cold, the belly is somewhat tucked up, and pressure over the loins causes the horse to cringe downwards; he walks with a stiffness of the hind-quarters, and will also lie down and roll, but not so violently as in a case of inflammation of the bowels. Now and again he will place himself in a position as if desirous to urinate, and strain violently, and when urine is passed, it is invariably very high-coloured, and frequently tinged with blood. This is more particularly the case when the inflammatory action is produced by the presence of some calcareous matter in the kidneys. In severe cases the horse turns his head to the flanks, indicating clearly the seat of his suffering.

In the treatment of this disease, the excretions of the bowels and skin should be excited so as to relieve the kidneys. A good plan is to apply over the body a large blanket wrung out of hot water. A moderate dose of purgative medicine should be given, say a pint of linseed oil combined with one drachm of calomel. Injections of tepid water are also beneficial by exciting the action of the bowels, and also in acting as fomentations to the inflamed parts. When the pain is very severe, a dose of two scruples of opium with one scruple of calomel has a tendency to relieve the pain. A mustard plaster over the loins is also bene-

ficial. Nitre and rosin should not be given in this complaint, as these medicines increase the irritation. The horse should be encouraged to take mucilaginous drinks, as linseed tea, hay tea, &c., and be fed sparingly on mashes of bran or on certain kinds of green food, as grass and lucerne, when it can be conveniently procured.

Strangles.

This is a disease peculiar to the young of the equine species. It usually attacks the colt about the period of dentition. There is an appearance of general bad health; the colt appears to be out of sorts; he is not so playful as was his wont, gulps his water and fails in his feed. His coat stares, and in a word, he has a dumpish appearance. Very soon a swelling shows itself under the jaw, and at the same time a creamy discharge takes place from the nostrils. This swelling can be distinguished from that which occurs in glanders, by its uniformity. In glanders the swelling is of a nodular character, and generally at one side, with a tendency to adhere to the jaw or to some of the surrounding membranes. The discharge is usually only from one nostril, and in the nostrils there are deep angry ulcers, with rugged overhanging edges.

There is another form of strangles called *bastard strangles*. In this form there is no discharge of nasal gleet; the swelling may appear on any of the groups of lymphatic glands; it may even settle on some of the internal organs, lungs, mesentery or brain. Every endeavour should be used to make it break externally. Sometimes, in genuine strangles, if there has not been a free discharge externally, it goes in and settles on the brain.

I had an opportunity of examining the brain of a horse which had died from this cause, and found that there were two or three large abscesses on the *cerebrum*, and two on the *cerebellum*. The animal had got what the owner called "over the distemper," although not thriving as well as he ought. At length he became delirious, and finally died in a state of coma.

The treatment for strangles is very simple. Medicine, in most cases, does more harm than good. Keep the colt in a comfortable loose box, give the most nourishing food possible—boiled barley for example; steam the nostrils well. This may be done best by cutting the bottom out of an old sack and then drawing it over a horse-bucket; then put a boiling hot bran mash in the bucket, and place the colt's head in the bag. A large bran or linseed poultice should be put under the jaw, or wherever the swelling appears. The poultice cloth should be a sheet, to cover the entire head, with holes cut for the nose and ears, and tied at the back of the ears.

Sometimes the colt is in danger of immediate death from dyspnœa; then tracheotomy should be performed; this cannot be done without the assistance of the veterinary surgeon.

This disease is contagious, empirics to the contrary notwithstanding.

In ordinary cases, with the above treatment, the colt will be as well as ever in three weeks.

A. M. C.

The Dairy.

Why Winter Butter is Poor.

The month of June, all things considered, is regarded as the best month in the year for manufacturing butter. This is due to a combination of circumstances. Drought seldom commences so early in the season; accordingly both feed and water are abundant. The grasses which are the natural food of cattle are then in a state to furnish not only the most food, but that of the best quality for prodneing rich milk. The insects which are so troublesome later in the season have not made their appearance in large numbers. The air is not tainted with bad odours as it is later in the season. The temperature is very favourable to the rising of cream, neither so warm as to cause the milk to sour quickly, nor so cold as to prevent the separation of the oil globules.

Another season very favourable to the production of good butter is the early fall. At this season we ordinarily have rains that bring up the grasses to something like the plenteousness they gave us in the spring. Many of the insects so plenty in midsummer have disappeared, and the temperature throughout the day is more uniform.

When winter arrives, however, the quantity of the butter is greatly lessened, and its quality is much inferior. In truth, the chemical composition of the butter is considerably changed. The ingredients are different, not in kind but in quality. Oleine, which is the softer fat in butter, is much more plentiful in summer butter than in that made in winter. The colour of winter butter is also different from that made in summer. The former is almost white, while the latter is golden.

The unfavourable condition and appearance of winter butter are partly owing to causes that we cannot control, and partly to causes that we can, in a measure, obviate. Dry food will produce less oleine than fresh green food. We, however, can prevent a very great diminution of this fat, by cutting our grasses earlier, and curing them so that they will retain all their natural juices and their aromatic qualities. We can prevent the lessening of the quantity of milk to the extent that usually happens by keeping our cows as well supplied with food and drink as they are in summer, when they can feed at will, and can procure water whenever they wish. Giving cows food and drink only after long intervals of fasting has a most injurious effect on the secretion of milk.

The light colour of butter in winter is, doubtless, due to two causes. The oleine is of a darker colour than the other ingredients of the butter, and the more scanty it is, the paler will be the colour. The chief cause, however, of winter butter being so light coloured, is due to the cream becoming bleached before the butter is churned. Cream has its richest colour when it first rises to the surface, and if it is churned in that condition the butter will be yellow. If it remains, however, exposed to the light, particularly if the temperature change, the rich yellow colour disappears, and it will be found to be impossible to produce golden butter from white cream.

Let any one try the experiment of taking some yellow cream with a little milk below, and let this remain for two days or more in a glass vessel, and mark the changes that take place in the colour. At first the line between the cream and milk is very distinctly marked, but after a little, the cream has become bleached to such an extent that it cannot be distinguished from the milk in colour. Winter butter is white, then, because the cream is ordinarily kept too long before it is churned. It is very hard to obviate this difficulty in small dairies, particularly when the cows are so poorly provided for that their milk becomes very scanty. It is, doubtless, better, even if the supply of cream be small, to churn as often as we do in summer, using a churn proportionally smaller.

Winter butter has a poorer flavour than grass butter, from a variety of causes. The food the cows eat is devoid of the agreeable taste common to the grasses while growing or in blossom. Besides this, the milk is too often kept in a room the atmosphere of which is foul from the odours arising from cooking. The milk, at such times, acts the part of a disinfectant, and carries the stench of th kitchen into the cream pot, and from thence into the butter jar.

Good butter can be, and often is, made in winter, but it is only done by having all the circumstances surrounding the cows—the milk room and churning—as nearly as possible like those in summer. The cows must be fed on food rich in sugar, and never be stinted in amount. The milk must be set in a room the air of which is pure, and the temperature of which does not greatly vary. And lastly, the cream should be churned when it is not above 24 hours old. —*Prairie Farmer.*

Grinding Cheese Curds.

The process of grinding curds seems to be coming gradually into vogue. One day last week we visited Dr. L. Wight's factory, at Whitesboro, to witness the operation of grinding by the use of a small oscillating engine, which does pumping, churning, etc. The curds are first treated after the American Cheddar method, by running off the whey just as it begins to acidify, and allowing the curd to drain and air while the acid is developing. It is then taken out in large chunks, put into the sink, run under the curd mill and ground, or rather picked to pieces, salted, and immediately put to press. If allowed to get too cold, it is difficult to make the cheese face. The curd mill or picker tears the curd to pieces as fast as one can conviently feed it.

By this process, a good deal of stirring is saved, no strainers or racks are needed, and the salting is done with more certainty and evenness. There is not so much danger of getting the curd too sour, and a few moments' delay is not of so much consequence as it is when the curd lies in the whey. It seems to be certain that a firmer cheese is secured. The gas which makes open cheese either escapes or does not generate, and hence a tainted or floating curd makes a cheese that stands perfectly true on the arnges without the least sign of "huffing."

That there is any real improvement in the quality of the cheese we are not prepared to say. The indications of tainted milk are still perceptiblo in the flavour, and cooling the curd retards putrefactive action, which will sooner or later show itself, especially if the cheese be subjected to excessive heat in the rail-car, on shipboard, or in the storehouse. Still, the advantages of the Cheddar process, and of grinding a tainted curd, are apparent; but we concur in the opinion of Dr. Wight that, if the milk is all right, the old method is as good as any, so far as the quality of the cheese is concerned.—*Utica Herald.*

Sulphur as a Deodorizer.—The *Maine Farmer* says:—"One night a sort of domestic animal, known as a skunk, took up his abode in the back entry of a house, and being disturbed by the cat, emitted a most disagreeable odour—as he is always sure to do when he is at a all suspicious that his rights are being invaded. The dairy being in the neighbourhood of where the conflict took place, it became infected with the noxious odour, when our friend, in his haste to cleanse the premises, burnt some sulphur in the room. The effect was magical, as it completely neutralized all the foul smell."

Corn Leaf Fodder.—It has long been the habit in the South, where hay is scarce and poorer than here, to rely largely on cured corn leaves for wintering all kinds of stock. These leaves are stripped from the corn, the talks being left in the field till winter. The *Arkansas Farmer* tells how it should be done: "As soon as the shuck ripens, begin to strip the blades. Do not put the fodder on the ground, leaving it until evening to bind. The method of tying in small bundles as it is stripped, and hanging on the stalks to dry, is best. When about three-fourths cured, gather and throw in good-sized close heaps, late in the evening, and let it go through a heating process during the night; next day throw open the heaps—the heat will dissipate the remaining moisture, cure the fodder sooner, and give it, at the same time, a tenderness and flavour much relished by the stock. Spare no pains to cure it well—if mouldy and dusty, it may prove more than worthless."

Horticulture.

EDITOR—D. W. BEADLE,

CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

The Fruit Growers' Association of Ontario.

This Association held its regular autumn meeting in St. Catharines on Thursday the 22nd Sept., 1870. There was a very full attendance of members, and a very fine display of fruit. The collection of grapes was very extensive, embracing a great number of varieties, and many of the newer sorts, including the Rumelan, which latter sort was exhibited by Mr. John Brown, of Thorold, and Messrs. Coleman and Merritt, of Geneva, N. Y.

The meeting was called to order by the President. The minutes of last meeting were read and the following Committees appointed:—

Committee on apples and pears—Messrs. Dougall, Morse, and Bennett.

Committee on grapes—Messrs. Read, Taylor, and A. M. Smith.

Committee on other fruits—Messrs. Mills, R. M. Ball, and Saunders.

Committee on wines—Messrs. Farrell, Logie, and White.

Committee on seedling fruit—Messrs. Cross, Arnold, and Halton.

The discussion of the best method of pruning and training the grape vine was then entered upon.

Mr. Y. Keating, of Jordan, stated that he trained his vines on the arbour system. His vines did not cover the top of the arbour trellis as yet, and therefore he allowed the vines to fruit on the perpendicular part of the trellis; but as soon as the vines are able to cover the top he intended to prune off the branches from the perpendicular part of the trellis and confine the fruit and foliage to the top or horizontal part. He has about an acre and a half planted with the Delaware, of which one acre is trellised. He pruned in March and April, and has three canes to each vine, but has not practised trimmer pruning, but is of the opinion that a little pinching in during the summer would be serviceable. The vine now exhibited by Mr. Keating and covered with ripe fruit has been planted six years. He manured his vineyard two years ago by ploughing under clover, and last spring applied a dressing of well-rotted barnyard manure. His soil is sandy loam, the soil about eight inches deep, with a hard, yellow sandy subsoil, having a hard pan two and a half feet below the surface, and clay from eight to nine feet down.

John W. Ball, of Niagara, trains his vines on the arbor trellis plan, no foliage allowed on the sides of the trellis, the vines are trained up the sides of the posts to the top of the trellis, and the sides are open all around, so that he can drive under the trellis in every direction and cultivate with the horse every part of the vineyard. The posts are seven feet long, not planted in the ground, but set upon a flat stone placed under the foot of each post. The horizontal bars are nailed on to the top of the post, so that the whole weight of the top rests on the ends of posts; and braces run from the posts to the horizontal bars. Made in this way, there is no rotting off of posts, nor strain upon a nail, nor blowing down by the wind, nor heaving out of place by the frost. His soil is a clay loam about a foot deep, with a retentive clay sub soil, well under-drained. Has manured them with leached ashes. His vines are planted twelve feet apart each way. Of course, his vines get no winter protection.

W. H. Read, of Port Dalhousie, said that he pruned both in the fall and spring, mostly in the fall because it was more convenient to do it then. He varies his pruning according to the habit of the vine: those of very strong growth and vigourous habit requiring to be left with longer shoots than those of a slower habit of growth. He has never seen any evil to result from fall pruning. Some of his vines are trained to stakes, others to upright trellises; has not tried the arbour trellis; thinks the best ripened grapes are those near the ground, because they get the radiated heat of the earth. His soil is a sandy loam, about eighteen inches deep, with a hard-pan subsoil, located on the south shore of Lake Ontario. He thoroughly manured the ground with barn-yard manure when he planted the vines ten years ago, but has not given them any manure since. High manuring may produce larger grapes, but poorer in quality.

Jas. Taylor, of St. Catharines, prunes his vines in the fall and finds that they do not get injured by the winter in consequence. He has more leisure to prune in the fall, and therefore prefers to do it then; is also satisfied that grape vines are not benefitted by high manuring, and has abandoned the practice of manuring them except by a mulch of barn-yard litter over the roots. His soil is a limestone gravel, naturally porous and well drained. Some of his vines are on a side hill, with a western exposure. He has also given up the practice of summer pruning, having become convinced that much summer pruning is injurious, and now contents himself with merely pinching in the ends of shoots that seem to require it.

The meeting adjourned until 2:30 P. M.

AFTERNOON SESSION

The President called the meeting to order, and called upon Mr. Haskins, of Hamilton, who remarked that he preferred the arbor system of training and Spring pruning, especially for the free-growing sorts, such as the Clinton and its confreres. He uses as fertilizers leached ashes and bone dust and stable manure. He mixes two tons of bone dust with four tons of ashes and four tons of gypsum or plaster, and applies it to five acres of vines. He finds that many varieties kill back badly in the winter if fall pruned, and therefore he prefers the spring. He has nine-and-a-half acres of grape vines in cultivation, planted two years ago last spring. The vines are showing a little fruit this year. The sorts are mostly Rogers' hybrids, with a good many Delaware and Clinton, with about twenty other sorts for experiment. Is much pleased with the Iona, Delaware, and Rogers No 4. Thinks the Creveling one of the very best of wine grapes, but the bunches are very imperfect, because the berries do not set well, but are too scattering. The soil is sandy loam, with clay bottom, well underdrained.

Mr. Babcock, of Lockport, New York, said that vine cultivators in the United States were now beginning to prune larger and train higher. They have heretofore been in the habit of cutting off too much of the vine at the winter pruning. If the vine sets too much fruit they thin it out, either by cutting out the branches or by cutting off the entire branch, fruit and all. They usually cultivate on upright trellis, composed of three wires, fastening the vines to the wires with willow twigs or rye-straw. There is a new wire contrivance for fastening the wire to the trellis known as Underhill's patent wire back. They have a machine for tightening the wires of the trellis.

Here several members described different contrivances for tightening and slackening the wires of the trellis; the most simple of all seemed to be one described by Mr. Barnes, of Hamilton, but we forbear attempting to give a descrip tion, hoping to obtain from Mr. Barnes a full description with illustrative drawings.

The meeting now proceeded to the consideration of the best methods of grafting the vine.

W. H. Mills, of Hamilton, said he had not been successful in grafting a vine that was already established growing in the soil, but when he dug the vine up and then grafted it and planted it out again, he had met with very good success.

W. H. Read, of Port Dalhousie, said that he had grafted in the fall and then carefully protected the grafts from the frost. In this way forty-five per cent. had done well.

C. Arnold, of Paris, had succeeded well in the same way; it was not necessary to have the bark of the scion and stock fit together, as in grafting the apple, but they grew just as well when inserted in the middle of the stock.

Mr. Brooking, of Ancaster, planted out some old vines, thirteen in number, and then grafted them. Of these twelve grew. This was done in April, and the crown where the graft was inserted was covered with earth, leaving one head of the scion at the surface of the ground

Mr. Dougall, of Windsor, had tried grafting the vine, but always failed.

Hugh Smith, of Sarnia, exhibited to the meeting some samples of a method which was a combination of layering and grafting. The branch of a tree or shrub is bent down so as to admit of the twigs being readily layered; the twigs are then tongued on the underside as for layering. A piece of root of the same

species is cut about six inches long, pointed like a wedge at the upper end and inserted in the slit made in the twig, the bark of each being fitted exactly on at least one side, and fastened to its place by tying with basswood bark or cotton yarn, and then the root is inserted in the ground, with enough of twig to keep the point of union moist below the surface of the ground.

The accompanying sketch may illustrate the process. a is a branch bent down to the ground. b is a hooked peg to hold the branch in place. c c are the twigs slit on the under side. d d are pieces of root inserted into the twigs at the slit made on the under side. e shows the wedge form of the root at the end to be inserted in the slit.

Mr. Smith stated that he did not suppose that this method would be generally used, but that it would be found to be of service in the propagation of those trees, plants and shrubs that are difficult of propagation by the ordinary methods.

President Burnet, of Hamilton, had cut his grape scions in the fall and kept them in a cool place, where they remained in a dormant state until the vines were in full leaf in June; than he inserted a scion of two or three buds long in a branch of a growing vine, in the usual manner of cleft grafting, fastened the graft by tying, and then buried the place of union in the soil sufficiently deep to keep it moist; and, in order the more certainly to secure this, he covered the place of union, before burying, with a thick coating of cow-dung. In this manner he had been very successful.

The best method of manuring the vine was here taken up.

Mr. Arnold, of Paris, would use very little manure, and never use coarse or highly nitrogenous manures.

Mr. Mills, of Hamilton, would manure according to the requirements of the variety. Some varieties, of the Delaware, required high culture and would never yield their best results in poor soil; others, as the Diana, required no manuring, but yielded their finest crops and ripened them best in a poor soil abounding in lime.

Dr. Cross, of St. Catharines, manures only those varieties which are slow growers.

Mr. Farrell, of Cayuga, would manure according to the habit of growth of the variety.

Mr. Bennett, of Brantford, thought that vines succeeded best in the natural soil; at least he would not manure highly.

Mr. Read, of Port Dalhousie, uses leaf mould, cow dung and ashes.

Mr. Taylor, of St. Catharines, top dresses with coarse stable manure, more as a mulch than otherwise.

Rev. Mr. Campbell, of Niagara, has an old Isabella vine growing in grass in the lawn, which fruits abundantly, and ripens its fruit well.

Mr. Mills also had an Isabella that had stood for seven years in sod that bore fine fruit and ripened its fruit.

Dr. Cross, of St. Catharines, cultivates the ground between his vines, and never failed to ripen the Isabella except in 1869; and when there are no severe September frosts his Catawbas ripen. He prunes on the renewal system, and finds the Isabella and Catawba grow finer fruit and ripen it better on young canes.

On the subject of winter protection of grape vines,

Mr. Saunders, of London, said that he was of the opinion that a grape vine which required winter protection was not worth having. He had found most of our varieties sufficiently hardy without any winter protection, though his Diana had been killed to the ground.

Mr. Read, of Port Dalhousie, protects by a light covering of pure soil or earth. Other coverings are apt to afford a shelter for mice.

Mr. Arnold, of Paris, finds few varieties that succeed without winter protection. He thinks branches of evergreens the best winter protection that can be used. Inquiry was made as to the hardihood of his seedlings, to which he replied that he had supposed that they were all hardy, but that of late the white variety seemed to be tender. Brant, Canada, and Cornucopia were tolerably hardy.

Mr. Paffard, of Niagara, protected only those of foreign origin, as the Sweet Water, Zinfandal, &c.

Mr Farrell, of Cayuga, used formerly to protect all his grape vines in the winter, but had gradually abandoned the practice, and now only protected newly planted vines during the first winter.

Mr. Bennett, of Brantford, had been in the habit of protecting his vines every winter and has uniformly had good crops, but last winter he left his vines exposed, and they were badly winter killed. He thought it quite possible that having been heretofore protected they were now less able to withstand the winter than if they had never been protected, and hence the injury last winter to even old canes some inches thick.

Mr. Arnold, of Paris, suggested that vines can be too much covered, especially with soil, for if buried too deep the wood of the vine is kept too moist and the buds rot.

On the subject of Insects on the vine,

Mr. Bennett, of Brantford, remarked that he had been remarkably exempt, the only insect he had seen was one that had punctured the berries of the Diana.

Mr. Mills, of Hamilton, had been very much troubled with the vine thrips, but could not suggest any mode of getting rid of them.

Mr. Dougall, of Windsor, had noticed that the thrips injured only the thin leaved sorts such as the Delaware and Clinton, but was unable to injure the thick leaved varieties, such as the Concord, &c. He had been very much afflicted with a worm in the berry of the grape, probably the same as the insect in the Diana mentioned by Mr. Bennett.

Mr. Saunders, of London, mentioned that the thrips could be very much lessened by having a man pass through the vineyard bearing a lighted torch, while another went with him and shook the vines; the thrips, disturbed from their hiding places under the leaves, flew into the blaze and perished. The flea-beetle could be easily killed in the larva state, and it only required proper attention to keep this pest in subjection.

Members mentioned the varieties of grapes which they had found, on the whole, to be the earliest. The four sorts which were mentioned by nearly all the members were the following, viz: Hartford Prolific, Adirondack, Massasoit (Rogers No. 3), and Creveling.

Mr. W. H. Read, of Port Dalhousie, stated that he had some seedling grapes which ripened in August, and which he fully expected would prove to be perfectly hardy, and ripen earlier than any of those that had been named.

The meeting then took up the subject of Pear trees, their cultivation, manuring and pruning.

Judge Logie, of Hamilton, did not give his pear trees any special cultivation; he supplied them liberally with ashes and an occasional top dressing of manure; had experienced a little blight, and some spotting and cracking of fruit.

Mr. Jas. Taylor, of St. Catharines, had not found the cultivation of pear trees very satisfactory; has lost a good many trees—believes very little. His soil is a gravelly loam; trees are dwarfs, some have thrown out roots above the quince stock and become standards.

Jas Dougall, of Windsor, has a heavy loam and a strong clay loam; had tried 350 different sorts on the quince stock. Some of these grew finely, many would not grow at all. Had learned that some sorts were not suited to the quince stock and should never be grown as dwarfs, such as the Bartlett, Seckel, Doyenne d'Ete, &c.; on the other hand the Beurre d'Anjou, Duchess d'Angouleme, Ananas d'Ete, &c., would thrive well as dwarfs. He would plant a pear orchard of Standards and dwarfs together, setting the Standards thirty feet apart each way, and put dwarf trees between them so that the trees would stand fifteen feet apart each way. Has no blight. Angiers quinces are the only suitable stock for dwarf pear trees. In cold latitudes strong shoots should be pruned back to the ripe wood, early enough to heal over before winter.

A. Straight, of Watford, had found the pear tree to be generally healthy and prosper best in clay soil; they should not be too highly manured, especially with raw manures. He named the Flemish Beauty as one of the most hardy and desirable varieties.

Thos. Ketzs, of Grantham, preferred the Standard pear trees, especially of the Bartlett and Flemish Beauty varieties. Dwarf pear trees need good culture.

Mr. Arnold, of Paris, said that all young trees should receive good culture.

Mr. Saunders, of London, had just visited two distinguished cultivators in the United States who advocated and practiced opposite systems of pear culture. One adopts the system of no pruning — the other prunes considerably. He thought that if results were a just exhibit of the effect of the two methods, the man who pruned his trees had the advantage decidedly. This was Mr. Quinn, whose pear orchard is near Newark, New Jersey. He plants only dwarf trees, at one year old, setting the point where the bud was inserted six inches below the surface, trains the branches low, and plants only a few sorts. He gets from $12 to $16 per barrel in New York for the Duchess d'Angouleme; from $12 to $14 per barrel for the Seckel: $20 per barrel for Rhenish Beauty; for the Bartlett $10 per barrel, and for the Beurre Clarigeau $25 per barrel. He does his pruning in the spring, about the 15th of March, and cuts the strong growers well back.

Mr. Morse, of Smithville, thinks that while the pear should have liberal culture, yet the trees can be injured by too liberal application of barn-yard manure. He uses leached and unleached ashes with good results, and has never yet failed of having a good crop of pears.

The session having continued until nearly ten o'clock, p.m., at which time many of the members were obliged to leave for the train, the Association adjourned, to meet in Toronto at the annual meeting, to be held on Tuesday evening, the 4th of October.

Some samples of fruit that were sent by express, and intended for exhibition at the meeting, failed to arrive in time; among these a branch of an apple tree which bears small Russet apples, and large smooth apples resembling the Vaudievers. This was sent by D. Hammond, Sheridan, P. O., who writes thus:—"I also send for your investigation a limb bearing two kinds of fruit. I have shown it to different persons, and told others of it, but none can account for it in any way. You will see what variety the fruit is of, the large apple being the kind it bears, the russet being the mystery. If the Association can explain in any way the cause of its bearing the russet without human agency, which it certainly does, you will confer a favour. I send this last as a fact of interest that has fallen to my experience, as requested in the circular."

The several committees appointed to report on the different fruits exhibited handed in their reports, but there was not time to read them to the meeting.

Many reports have been received by the Secretary of the growth of the Rumelan Vine. Nearly all state that it has made a good growth and ripened its wood well; two or three state that the leaves were attacked with mildew, in which cases, of course, the wood has not been well ripened.

Members who have not sent in their report on the growth of the Rumelan Vine, received by them from the Association, are requested to do so without delay.

The subject for discussion at the meeting on the 4th Oct. will be the benefits of fruit culture as connected with the farming interests of the Province.

Vine Culture in Australia.

To the Editor.

Sir,—In a recent issue, I read some remarks on Vine Culture, and thinking I might interest, if not benefit, those who have planted the grape in Canada, I purpose giving a description of the propagation and culture of the vine as practised in South Australia, in which Province I resided upwards of twenty-five years, and am perfectly acquainted with every mode of treating the vine in that colony—whose vineyards have spread over many thousand acres, the produce of which is largely and favourably known in the Indian and London markets.

The mode of preparing the ground for a vineyard is first to free it from all stumps and obstructions; and two ploughs and bullock teams are employed, one with four bullocks, and one eight. The team of four, attached to an ordinary plough, strikes out a furrow right and left, the same as the ordinary way of forming the crown of the land, driving the plough along the two first furrows again so as to break the ground to eight inches in depth, which is easily kept after once a start has been made. The second plough, worked by eight bullocks, is a skeleton plough, very strongly built, having no mould-board, is of extra depth from sole to beam, and has a strong double-winged share. This follows in the furrow of the first plough,

and stirs the soil to the total depth of eighteen inches, which is considered sufficient. This method enables the operator to trench-plough half an acre per day, taking into account the clearing of stone, and other delays, and when the trenching is completed, cross-harrowing with a heavy implement is done, and the surface brought down fine to prepare it for planting. Vineyards planted by farmers for their own use vary from five to twelve acres, which gives them sufficient of a wholesome beverage to last from year to year, and all proprietors of five acres of vines and over, are allowed, under liberal regulations, to distil the spirit from the lees or other refuse, and use it to fortify wines deficient in alcohol; but this applies more to the wines made in mountain districts, as the wines of the plains contain from twenty-five to thirty per cent. of natural spirit. Where wine-making is the object, vineyards vary from twenty to one hundred and fifty acres.

Planting.—The ground being ready, and the season arrived, such varieties are selected as the taste or experience of the owner dictates, and cuttings of well-ripened wood are selected, (always avoiding the latter growth), and as the ground has been worked to a depth of eighteen inches, the cutting should be twenty-one inches, being sunk to the bottom of the trenched land, and leaving two eyes above ground. The cutting is cut square off at the base of the lower eye, and as some varieties are prone to throw up suckers, it is dishudded between the lower and two top eyes.

The cuttings are let down to their places with a cross-handled iron bar, and the soil filled in tightly round the cutting in order that the rains may descend freely to the foot of the cutting and start it.

The number of plants per acre is regulated by the variety to be planted; it being necessary to keep strong and weak wooded varieties apart. Black Portugal, Frontignac, Shiroz, Mataro, Verdillho, Grenache, Madeira, White Muscat, and the Sherry grapes, are planted six feet apart each way; giving 1,225 plants to the acre. Stronger wooded varieties (table grapes) are planted eight feet apart each way, while Tokay, Carignan, Carbonel Savignon, and some Rhenish varieties, are planted four feet apart in the row, and six feet between the rows. The most successful modes of treatment for the plains is that of treating the vine as currant trees are in England. The plant rises on a stem not exceeding a foot in height, and is kept open in the centre, taking care to balance the plant in its external limbs, and in pruning the young wood is cut back to two eyes, carefully removing all decaying spurs, which convey rot to the heart of the plant and soon throw it out of health, and rag the fruit at crop time. The vines are not allowed to rise more than three feet, as succession wood is left, and the older limbs displaced. The plants are kept as symmetrical as possible, to ensure the cleaning of the land, and admit of perfect ventilation for maturing the crop. All ground wood is cut away, and the stem kept clear, as the shoots thrown off below fullbearing limbs rob the crop of its weight, and impoverish the fruit. For hill cultivation, the succession cutting is practised, i. e., wood of the last season's growth is laid in for bearing, and trained to the trellis, which is formed by posts being let in every thirty feet, and No. 4 wire passed through them, and tightly strained, never letting the bearing wood rise higher than thirty inches. The best young wood is laid in for the next season's crop, and all superfluous growth and laterals are displaced. It is customary to plant the vines running north and south, as the crop is best shaded from the meridian sun, and more equally ripened. The first method I have described has the advantage as to expense, as no staking or trellising is required, and is more easily worked.

The cost, per acre, of planting is, trenching, 30s. per acre; cuttings and planting do., including repairs of ploughs, harrows, etc., £3 10s.; total £5 per acre. It is very necessary to keep the ground free from weeds, as no vineyard is productive which is allowed to get foul.

In planting a vineyard, sloping and well-drained land should be selected, as grapes grown on swampy land are ill-flavoured, and subject to late frosts often destroying the crop. If the cuttings have been properly prepared and planted, very few failures take place, not more than ten per cent., and as the vine is very impatient of removal, it is better the cutting should be planted where it is to remain. The first season, cut the wood back to one eye, two eyes the second season, and so on till your plant has risen high enough for the stem, then let it have three limbs, forming as nearly as possible an equilateral triangle, from which the future head is formed. Be careful not to over-wood your plant, as you would only produce weak and barren growth. In the fifth year the vines should average eight pounds per plant; many varieties, such as Black Portugal and Greenache, give much more. The cost of ploughing, harrowing, pruning and cleaning cuttings, hoeing, through the season, is £3 per acre for a seven year old vineyard. I know of vineyards in South Australia, which, under good management, yield 300 gallons of wine per acre, which, at 2s. 6d. per gallon, give an income of £100 per acre, minus the ploughing, pruning, gathering, crushing and cellarage, for which together say £10 per acre, leaving £90 net. With more delicate varieties the produce per acre is not more than half; but the value of the wine is double, so the same result is arrived at.

Let not the Canadians be discouraged in vine culture, for I am sure, under careful treatment, good returns can be had. On a late visit to Niagara, I was pleased to see how luxuriant the wild vine grew close to the falls, and I gathered and ate some wild black grapes there which were far from being unpalatable. It occurred to me if a collection of cuttings from different varieties of the wild vine were made, which, by marking the plants now, could be easily done, (by noticing the difference in foliage), and properly cultivated, more useful varieties would be brought into bearing than by introducing foreign sorts, and I know raising the plants by cuttings, as I have described, will make bearing plants quite two years earlier than raising plants by separate eyes.

I trust that I have made myself sufficiently explicit to create an interest in vine culture in Ontario. I have only attempted to describe out-door treatment; but am fully conversant with that of the hothouse, and also of the manufacture and treatment of wines. Should any of your correspondents desire information in my power to impart, I shall with pleasure convey it; but would like to see some of the vineyards about Toronto.

EDWARD GILES.

23 Nassau St., Toronto.

On Grapes.

THE CHEAP CONSTRUCTION OF GLASS HOUSES.

Of course, it is well known to most of your readers that the varieties of grapes cultivated in the open air are those styled native grapes. These are principally crosses or hybrids between the wild grapes of America and the cultivated varieties of other countries, whilst those grown under glass are called foreign varieties. These latter require, in our short summer, the assistance of a glass protection, in order to equalize the heat of night and day, and to prolong the hot season by keeping out the late spring frosts, and those which ruthlessly destroy vegetation early in the autumn.

It is superfluous to state that it would not pay to grow in-door kinds if they were not vastly superior to those grown in the open air. The wholesale price of foreign grapes in Montreal is fifty cents per pound; the retail from one dollar twenty-five to seventy-cents—generally one dollar. The out-door kinds retail at from twelve and a half to thirty-seven and a half cents. I am told in Rochester they may be bought by the waggon load at five cents per pound in their season.

Glass houses are chiefly formed on two plans, either as a lean-to, with a south or southerly aspect, against some building already erected, or a double-pitched roof in an open space, or with the northern end attached to a house, fence, or other suitable place. The lean-to is certainly the most economical of glass; but in all the structures I have seen of this kind, the row of vines planted next the building to which the glass house is attached is of a very inferior growth to the one trained immediately along the glass. I would therefore most strongly

recommend parties about constructing, if they wish the greatest degree of excellence, to build on the double-pitched roof plan. A house sixteen feet long by ten feet wide may be built by sinking cedar posts five feet deep, so that there may be no danger of their being moved by frost, in two rows ten feet apart, eight feet apart in the rows. Up these nail down firmly, for plates, sixteen feet long scantling, three by four inches. The plates may be three or four inches above the surface of the soil. The rafters should be twelve and a half feet long, and placed four feet apart on the plate. It will be found a good plan, after putting up the first rafter, to nail the two first sashes lightly on before they are glazed, one on each side of the house. By this means the position of the second rafter will be obtained. The sash should come even with the centre of the second rafter. When you have this rafter in its place the lower end must be spiked down, and a strip temporarily nailed across the top, to keep that straight also. Sashes six feet by four can be procured at the mills here for one dollar each, and for the size of house mentioned sixteen will be required. These sashes must be five panes wide, of 8 by 10 glass. Besides these, there will be required a glass door for the south end, and two side sashes, and a three-cornered top sash. To glaze these it will take twenty-five pounds of putty and seven boxes of glass. This quantity, if not much broken, will leave half a box over for repairs. As the roof will be of a very steep pitch, it will be found best not to lap the glass in glazing, but to put it and to end in the sash, embedding the panes in soft putty. After they have been laid in the sash, which should have been previously primed with the best white lead and boiled oil, and a very little turpentine, they should be bradded in with two-eighth inch shoe-brads, to be obtained at the hardware store. The glazing can then be proceeded with. After it is finished, the glass should be shored up from the lower end, and a brad driven in to keep the glass from sliding down, and another coat of paint given over the wood and putty.

The rafters may be made by ripping down through the centre a twelve inch wide two inch thirteen feet plank, and as the sashes will be made of inch and three-quarter stuff, strips of that thickness, and two inches wide, must be nailed on the upper six feet of the rafters. The lower sash will be put on first, so as to project a little below the plate, and the upper sash should lap two inches over the lower sash. Care should be taken to have the foot of the rafter on a line with the outside of the plate. The rafters and plates should be planed smooth, and all knots covered with a composition called "knotting," to be obtained from the druggist, and then a good coat of white paint given before they are put in their places.

The bed for the vines should be principally made of sod off an old pasture, previously thrown into a heap. This may be turned over two or three times in the course of a month or two previous to its being put into the excavation made for it. A few barrels of ashes, ground bones, oyster-shells, and a load or two of well-rotted manure, may be advantageously added. The pit should be two and a half or three feet deep, and if the subsoil is at all inclined to be wet, the bottom should be concreted with mortar and gravel, or stone chips made by the cutters. These being for the most part flat, are easily worked in. A couple of feet of the floor should be plastered an inch deep, the stone then laid firmly on the mortar and smoothed over with another coat of plaster, and so on until the whole is completed. It is imperative that the concrete should have a slope of five or six inches in the sixteen feet to one corner, where a drain must be made to carry off the water. It is well to have three inches of loose stones, or a couple of rows of drain tiles, laid on the concreting, or a drain laid along the floor of loose bricks led out at the lower corner.

The wires for training the vines on should be put in vertically, fastened with small staples at the bottom, and run over a ridge-board at the top of the house, nailed under the rafters. These wires may again be stiffened in the centre by having a narrow piece of inch board, with saw cuts in it for the wires to pass through, nailed underneath the rafters six feet from the ground. After planting the vines it will be found of the greatest advantage if an inch of hen manure can be obtained to cover the surface of the vine bed; this will be washed into the light porous soil and have a most beneficial effect on the young vines. Down the centre of the house a foot-path should be laid of splints two inches wide and fourteen feet long, nailed at intervals of two feet across pieces of scantling two feet long, as it is of consequence that the soil should lie as light as possible in the border, and must on no occount be walked upon. At the same time, this kind of walk lets the light, air, and water through to the roots. Two of the top sashes, one at each side, should be made to slide down. Each of these sashes should have an iron bar attached firmly to itself, about one-third from the top end. This bar may be cut from an inch wide half-round bar, and holes should be drilled through it so as to allow of its being screwed to each bar of the sash with good stout screws. The centre of the bar should be rounded a little, as the cord used for holding the sash, when lowered, will be attached to it. The bar should not be so long as to touch the rafters, otherwise it will interfere with the sliding of the sash. The sashes being heavy, it is best to have on those which slide four small iron rollers, to be obtained at the hardware store, let into the sash eight inches from each corner. These will run on the rafter, and assist materially, in raising and lowering them, to regulate the temperature of the house. A rope is tied to the iron bar, and run through a screw pulley attached to the top of the house, and from thence brought down and attached to a cleet nailed to a rafter. This rope can then be shortened or lengthened as required. The rope being firmly attached, the sash is let down from the outside, being kept in its place when pushed up by a piece of wood two feet long, made to work on a screw driven through its lower end, and attached to the frame of the next sash to the one the sliding sash comes down over.

A vinery of this description, having an area of 12 by 32 feet of glass, can be built, by the party doing most of the work himself, for $63. A neighbour of mine constructed one with the aid of an architect, and letting out the work by tender, the area of which is very little greater, and the work on it simpler, it being a lean-to roof. It cost him two hundred and twenty-five dollars, and is not yet painted!

Mine can be extended from year to year at any time, which is another great advantage I possess. I give below my figures:—

For concreting two loads of stone, 25c. per load	$0 50
Three bushels of lime, 25c	75
Man for mixing mortar and concreting	1 50
Man and horse half a day, hauling sods	1 00
Two loads of manure, 25c	50
Sixteen sashes, $1	16 00
Glass door and three end sashes	6 00
Seven boxes glass, $2 12½	14 87
Knotting, 15c. Hinges, 10c	25
Eight small rollers for sash	25
Lock, 65c. Sash cord, 25c	90
Two screw pulleys	16
Two iron sash bars, 25c	50
Scantling and boards	5 00
Seven pounds galvanized wire, 10c	70
Man to glaze sashes	6 00
Sprigs for glazing	17
Nine vines, 50c	4 50
75 pounds of putty, 4c	3 00
	$62 55

P. E. B.

Ottawa, Sept. 7th, 1870.

Profit of Grape Culture.

Mr. C. L. Hoag, of Lockport, N. Y., has been engaged in the cultivation of the grape vine for many years. He is well known to the writer, not only as a very successful cultivator, but as a gentleman of careful observation, whose statements are not made without ample foundation, and who would most scrupulously avoid everything that could possibly mislead.

At a meeting of the Western New York Horticultural Society, Mr. Hoag, speaking on the subject of crops and sales of grapes, made some statements which were most bewilderingly reported—a very common occurrence. To correct the impression these errors of the reporters might occasion, Mr. Hoag writes to the *Rural New Yorker* a very interesting letter, from which we give our readers some of the items.

He states that, after twenty years' experience, he has found the grape more profitable than any other fruit grown in that section, but does not advise cultivators to attempt the grape except in localities where the grape succeeds, and on land well adapted to the grape, and that requires no underdraining. His Iona vines, planted ten feet by six, 726 vines to the acre, produced the fourth year, 1868, from ten to fourteen pounds per vine, the fruit having been

weighed when gathered. This crop was sold for thirty cents per pound, the offer made by the Hammondsport Wine Company of twenty cents per pound having been declined. But, taking the crop at ten pounds to the vine, and the price at twenty cents per pound, the result would be $1,450 per acre.

Mr. L. H. Babcock, President of the Niagara County (N.Y.) Agricultural Society, has a vineyard of Delaware vines which produced five tons per acre.

Mr. J. Craine, of Lockport, stated that his vineyard of the Wilder Grape (Rogers' No. 4) produced 9,000 pounds per acre, and the fruit was sold for twenty-five cents per pound in New York City.

Mr. N. Ringueberg, also of Lockport, stated to Mr. Hoag that his Delaware vineyard of two acres, planted two years, produced last year 1,500 pounds of well-ripened fruit per acre.

But none of these gentlemen approve of heavy cropping of vines, either young or old. Three tons per acre, as an average each year, is considered quite enough for well established vineyards. All of the vineyards above referred to are growing in open fields, fully exposed, not in gardens with the usual surroundings.

He does not expect as high prices for grapes in the future, but does not expect to sell good, well ripened, selected grapes for less than ten cents per pound during the next ten years, and believes that where grapes succeed they can be grown at three cents per pound with as much profit as wheat at two dollars per bushel.

Mr. De Long, of California, tells Mr. Hoag that grapes can be grown there at a cent and a half per pound with as much profit as wheat at $2 per bushel.

Strawberry Growing for Profit.

The *Horticulturist* for August expresses the opinion that the profits of strawberry culture have been greatly exaggerated, and estimates the average cost of growing, picking, and marketing strawberries at seven cents per quart, so that all the producer gets is what he may be able to realize over that sum. This estimate may be a little more than the cost to the Canadian grower, but we have become convinced from actual experience that the grower is reaping but a very small return for his risk and labour when he gets less than ten cents per quart.

It is a very easy matter to have the small fruit business overdone, as the history of that business for the last two years amply demonstrates. Before long we shall find it settling down in the hands of men of experience and skill. Men without these qualifications have rushed into the business, and have found that there were difficulties they did not anticipate—that the golden harvest did not fall into their lap. But some things have been learned by the failure of the ignorant and over-sanguine, and wise men will profit by them. Among other things, it has been ascertained that the largest crops are grown on clay soil, well drained and well manured, and that light soil cannot compete with it. It has also been ascertained that much depends upon the condition in which fruit comes to market, and that it pays in the long run to send only choice fruit in neat packages. And last, but by no means least, that it is of the utmost importance to cultivate only so much as can be cultivated, gathered and marketed in the best style.

What is a Flower?

Flowers are merely leaves, so arranged as to protect the vital organs within them, and coloured so as to attract insects to scatter the fertilizing pollen, and to reflect and absorb the light and heat of the sun for ripening the seed.

We see the whole gradual process of the change of the common leaf in all the parts of a flower, most beautifully displayed in the flower of the common white pond lily. The outermost circle of petals is greenish, approaching the herbaceous texture and colour of the calyx; the next circles are purer and more succulent, and the innermost ones are snowy white, entirely cellular, and begin to show rudiments of an anther at their points. Gradually the petals become smaller and narrower, while the anthers on their summits become more distinct, until at length the usual thread-like filaments, and golden dusty anthers of perfect stamens appear in the heart of the flower.—*The Gardener.*

Setting out Orchards in Autumn.

Notwithstanding all that has been said against the practice of planting apple trees in the fall, and the many statements given of failures of such trees to grow, I am still inclined to think the practice a good one, and certain to succeed in all cases where the soil is in a favourable condition, the trees healthy and vigorous, and the work of planting thoroughly well done. As is generally the case, those who fail through any cause (and in nine cases out of ten the cause is their own carelessness) are sure to cry out and condemn the practice, while those who are careful and succeed make no noise about the matter.

Three requisites are necessary to ensure success in the work of planting out orchards in the fall of the year:—

1st. The trees to be planted out should not be removed from where they grow in the nursery rows until their present season's growth of wood has become ripened and firm. Many agents are in such a hurry to begin their deliveries of trees that they persuade the nurseryman to take them up in the fall at an earlier date than he could conscientiously recommend. Such trees, full of sap arrested in its course by untimely removal, are very apt to get badly frozen during the winter, in patches all over the tree, from the roots to the top.

2nd. The ground to be planted as an orchard must be thoroughly well prepared, and if not already underdrained, must be ridged and furrowed in such a way as to ensure that no water shall remain on the surface anywhere near the trees, to be frozen if a sudden cold snap should come later in the fall.

3rd. The trees, after being well and carefully planted out, should have a small mound of earth about six inches to a foot high, drawn up round their stems, with the double object in view of preventing the trees being heaved by the frost through access by water around the collar of the tree where the newly-placed earth will wash down, and of keeping away mice from barking the tree, as when a mound of earth is round it, every wind that blows will drift away the snow, leaving the spot too much exposed for mice to harbour in. If the orchardist intend planting largely, it will be well for him to go himself to the nursery and see to their being properly removed from the rows where they are growing at the right time. In no case accept trees that have been taken out of the rows and heeled in on the ground, as there is no telling how early they may have been dug out. No trees should be dug until the season is far advanced or the frost has been sufficiently severe to stop the circulation of sap so as to allow the young wood to ripen and become solid. Be particular to get only such varieties as you think will succeed and prove profitable in your section, and have them so labelled that you may know each sort when dividing them out for planting. No honest nurseryman will try to substitute one kind for another that is desired, unless the orchardist consents to it.—J. M.

The Seed Crop of 1870.

Messrs. William Bryce & Co., seed merchants, London and Glasgow, state in their Price Current of this autumn that the quality of the seeds generally appears satisfactory, and they are inclined to thing, judging from their own observation, that the showers of August have greatly alleviated the evil effects of the drought of the spring and early summer.

Peas and beans are considerably below the average, early varieties having suffered most. Turnips are very deficient, and it is generally expected that prices must rule high throughout the season. Cabbages are good, but short in quantity. Mangolds and carrots are a light crop. Other seeds show a fair average.

The Gladiolus in Poor Soil.

Being a great admirer of that beautiful flower, the Gladiolus, I beg to state, in support of the opinion of some growers, that this flower does exceedingly well with me in very poor soil, very little better than brick rubbish, and the atmosphere is not very good, the place being only one mile from London Bridge. I mention these facts for the encouragement of those who may think soil and situation may not suit this flower.

I have had spikes equal to those I saw this season at the Crystal Palace; they have been admired by experienced gardeners.—William Edwards, Bermondsey.

Hamilton Horticultural Society.

The Fall Exhibition of this Society was held in Hamilton, on the 15th September. The tables were well filled with a fine display, especially of fruit and vegetables, and there was every evidence that the members take an interest and just pride in their Society. We had not time to take a special note of the many entries, nor of those articles to which prizes were awarded, having been hurried away before the judges had completed their work. One collection of new seedling potatoes we noticed, which were exhibited by Mr. John Freed, raised from seed saved last autumn from the Early Rose, fertilized with the Buckeye, which were of very fine appearance, and many of them very large.

Brantford Horticultural Society.

This Society held its autumn exhibition on the 13th September. It was the best which the Society has had. The number of entries was 780, and the display was very fine. The citizens of Brantford manifested their appreciation by a large attendance.

The success which has attended these Societies is gratifying to every friend of horticulture, and there is no reason why every town in Ontario may not have a successful Horticultural Society, except it be the supineness of the horticulturists themselves.

What is Fruit?

Fruit, in all its astonishing variety of texture, colour, and shape, is a modified leaf.

In the peach, the stone is the upper skin of a leaf, hardened so as to protect the kernel or seed; the pulp is the cellular tissue of a leaf, expanded and endowed with nutritive properties for the sustenance of the embryo plant; and the beautiful downy skin on the outside is the lower cuticle of the leaf, with the sun-bloom upon it, the hollow line on one side of the fruit marking the union between the two edges of the leaf.

In the Orange, the juicy lips enclosing the seeds are the different sections of the leaf developed in an extraordinary manner, while through the transparent skin of a ripe gooseberry the ramifications of the leaf-veins are distiuctly seen.—*The Gardener.*

Lawn Grass Seed.

Mr. William Saunders, in the *Horticulturist* for July, says that he finds the following mixture to produce the most perfect permanent lawn, viz:—

One bushel Red Top, *Agrostis vulgaris.*
Two bushels June Grass, *Poa pratense.*
One quart Timothy, *Phleum pratense.*
Two pounds White Clover, *Trifolium repens.*

These quantities are to be mixed and sown on one acre of land, the soil having been first thoroughly prepared.

Evergreens in the Orchard.

F. R. Elliott writes to the *Horticulturist* that many years ago he recommended the plan of planting here and there, irregularly but discriminately, *among* the apple, pear, or other fruit trees, more or less of Norway Spruce, White Pine, Scotch Pine, and other evergreens. Since that time he has repeatedly mentioned the subject, and called attention to the superiority of this plan over the one usually recommended, that of planting *a belt* of evergreens. His arguments are clear, and the wonder is that this plan has not been more generally advocated. He urges that the trees will not occupy any more space than when planted in a belt, and would exert their ameliorating influence throughout the whole of the orchard, instead of protecting only a breadth of say 100 feet. He says he has repeatedly witnessed the beneficial effect of contiguous evergreens in the bloom and fruiting of pears, apples and peaches, and calls attention again to this plan, from having again seen their protective influence in a plot of dwarf pear trees.

The Best Show Pelargoniums.

Attraction, Foster—Soft rosy lilac, novel and good.

Bonnie Charlie, Hoyle—Rosy crimson, with black top petals.

Charles Turner, Hoyle—Orange scarlet, rich dark upper petals, a grand flower of extra fine quality.

Claribel, Hoyle—A charming light variety, pure white, with a bright carmine spot on the top petals.

Corsair, Foster—Bright purple, with top petals, a novel and fine flower.

Conflagration, Foster—Rich crimson, with black blotch on top petals.

Diadem, Hoyle—Rosy purple, with deep shading, rich dark top petals.

Emily, Hoyle—Delicate rose, large and fine.

Empress, Foster—Rose, with maroon spot on top petals.

Envoy, Hoyle—Warm rose, with shaded dark top petals.

Example, Hoyle—A grand flower, rich deep crimson rose, black top petals.

Heir-loom, Hoyle—Rich orange rose, with large black blotch on top petals.

Hermit, Black—White, with large reddish maroon spot on top petals.

Lady of the Lake, Foster—Orange rose, very dark maroon top petals, a fine but rather late blooming variety.

Lilacina, Black—A pleasing pale lilac, coloured flower, not of the best form, but charming for its line of colour.

Maid of Honour, Foster—Light rosy pink, with small dark blotch on top petals.

Marion, Foster—A noble flower, rose, with dark maroon top petals.

Mary Hoyle, Hoyle—A beautiful flower, warm orange rose, small dark blotch on top petals, lit up with bright orange.

Queen of Roses, Beck—Lively purple, shaded with rose, new in colour, very attractive and fine.

Regina Formosa, Beck—Rose, dark top petals.

Royal Albert, Hoyle—Warm rose lower petals, large dark blotch on top petals, a large and very fine flower.

Sœur de Charite, Foster—Lower petals, rich painted orange, black top petals, a fine and striking flower.

Sunbeam, Hoyle—Rose lower petals, dark top petals, remarkably fine blooming.

Troubadour, Foster—Lively orange pink, dark spot on upper petals, a fine and striking flower.

William Hoyle, Hoyle—A very dark variety, lower petals warm rose, tinted with orange and red, very fine and novel in character.

Covering Grass Seeds.

A correspondent of the *Farmer* (Scottish) gives the results of some experiments by himself and a neighbour, showing that, in ordinary field culture, the prevailing opinion among farmers that the nearer the surface clover and grass seeds can be sown and covered, the better chance they have of succeeding, is contrary to actual experience.

His neighbour sowed a ridge of his clover seed along with the grain in the plough furrow, and found the clover to be much better on this ridge than on any part of the rest of the field sown in the ordinary way after the grain had been sown, and covered with light seed harrows. He sowed several plots of 100 seeds each in his garden, covering them at various depths, and found the proportion to grow to be as follows with rye grass:—

Plot 1.	Sown on surface,		6 ont of 100	grew.	
" 2.	Covered 1 inch....		50	"	"
" 3.	"	2 "	69	"	"
" 4.	"	3 "	47	"	"
" 5.	"	4 "	1	"	"
" 6.	"	5 "	0	"	"

With Red Clover it resulted in

Plot 1.	Sown on surface.		35 out of 100	grew.	
" 2.	Covered ½ inch.		40	"	"
" 3.	"	1 "	25	"	"
" 4.	"	1½ "	38	"	"
" 5.	"	2 "	5	"	"
" 6.	"	3 "	2	"	"
" 7.	"	4 "	0	"	"

The conclusion he comes to is that mixed grass seeds should be well harrowed in, while clover does not require so heavy a covering, a half to one inch being sufficient.

Flemish Beauty.—A remarkably fine specimen of the Flemish Beauty pear was sent to our office by Mr. W. B. Phipps, one of the most successful amateur horticulturists in this city, and who would stimulate his fellow-labourers in the same field if his name appeared often amongst the exhibitors at our horticultural shows. The pear weighed 17½ ounces, and measured in its longer circumference 13¼ inches, and 12 inches in the other.

Entomology.

The Onward March of the Colorado Potato Beetle.

A WORD TO CANADIANS.

Last July, while spending a few days in Ontario, we ascertained that this most destructive insect had just invaded the Dominion at two different points, namely, near Point Edward, at the extreme south of Lake Huron, and opposite Detroit, near Windsor, at the southwestern corner of Lake St. Clair. These are precisely the two points at which we should naturally expect to first meet with it on the Canadian border; for all such beetles as fly into either of the lakes from the Michigan side would naturally be drifted to these points. As we know from experience, many insects that are either quite rare, or entirely unknown on the western side of Lake Michigan, are frequently washed up along the lake shore at Chicago; and these are so often alive and in good condition, and so often in great numbers, that the lake shore is considered excellent collecting ground by entomologists. In like manner grasshoppers are often washed up on the shores of Salt Lake, in Utah, in such countless numbers that the stench from their decomposing bodies pollutes the atmosphere for miles around. We have not the least doubt, therefore, in view of these facts, that the Colorado Potato Beetle could survive a sufficient length of time to be drifted alive to Point Edward, if driven into Lake Huron anywhere within twenty or thirty miles of that place, or if beaten down anywhere within the same distance while attempting to cross the lake.

How truly is Mr. Walsh's prophecy being fulfilled, that the northern columns of this great army would spread far more rapidly than the lagging southern columns.

Now, what will our Canadian brethren do? Will they stand by and listlessly see this pernicious insect spread over their territory like a devouring flame, as it has done over the Western and Central States; or will they make some determined and united effort to prevent such a catastrophe? Of one thing our friends across the border may rest assured—they have not here a sham and braggart Fenian army to deal with, but an army which knows no retreat, and whose members, though of small and insignificant stature, will fully make up in number what they lack in size.

When we calculate the immense loss, amounting to millions of dollars, which this insect has cost the Western States during the past nine or ten years—when we contrast the healthful and thrifty aspect of the potato fields in Ontario and in those States to which this potato plague has not yet spread, with the sickly, denuded, or Paris-green-besmeared fields at home—but above all when we reflect that, nothing preventing, it will infest the whole of Ontario within, perhaps, the next two, and at farthest within the next three, years—we feel that it is high time to make some effort to prevent its onward march through Ontario, if ever such an effort is to be made. The warnings and instructions given by the agricultural press, and through our own columns, will avail but little, as they reach the few only. It may be, and doubtless is, true that successful culture, as our country becomes more thickly settled, will be confined to the intelligent and well-informed; yet the fact nevertheless remains, that the masses will do nothing to ward off an evil until they are forced to it from necessity. The plodding, non-reading farmer will take no notice of the few bugs he first sees in his potato field, because they do him no material injury; but when the bugs have increased so as to make it a question of "potatoes or no potatoes" with him, then his energies will be aroused. But alas! his best efforts, at this time, often prove unavailing, and he has to spend days to accomplish that which a few minutes would have accomplished before. We therefore fully expect to see this great army of bugs continue its eastward march without hindrance, unless other preventive measures are taken than those already employed. A standing premium offered by the Minister of Agriculture, Mr. Carling, for a given number of beetles, or for the greatest number collected and killed in one season, or for the cleanest and best field of potatoes, of a given number of acres, within the infested districts along the eastern shores of the lakes mentioned and those of the St. Clair river, might, and undoubtedly would, be the best means of stamping it out and of keeping it out of the Dominion.

No doubt that, in suggesting any expenditure of money for such purposes, our Canadian brethren will deem us over-enthusiastic about "small things," and over-anxious for their welfare. Well, be that as it may, we don't forget that there is considerable of Uncle Sam's territory beyond Niagara. It is a mere matter of dollars and cents, and we venture to say that, when once this insect shall have spread over Ontario, a million dollars would be freely spent to accomplish that which will then be almost impossible, and which a very few thousands would effectually accomplish now—namely, its extermination from the Dominion.

An excellent chance is now afforded in Ontario—almost surrounded as it is by lakes—to keep this destructive enemy at bay. In the summer of 1869, reports of this insect's ravages, and of its progress eastward, came thick from Wisconsin and Indiana; but no organized effort was made to check it, and indeed there was very little chance of doing so. It is now fast spreading through Ohio; and, according to Dr. Trimble of New Jersey, has already reached Pennsylvania. Uncle Sam can not well prevent its onward spread around the southern shore of Lake Erie, through Pennsylvania and eastward; but, if it can be effectually resisted between Point Edward and the Detroit river, there will be little difficulty in preventing its crossing at Niagara. A victory would indeed be gained if, by intelligent effort, this grievous pest could be kept out of Upper Canada, while it is devastating the potato fields on all sides in the States; and Minister Carling would add to his well-deserved popularity by making the effort, whether it succeeds or not.

PARIS GREEN AS A REMEDY.

While on this subject it may be well to say a few words about the use of Paris green. This substance has now become THE remedy for the Colorado Potato Beetle, and it is the best yet discovered. Having thoroughly tested it ourselves, and having seen it extensively used, we can freely say that, when applied judiciously, it is efficient and harmless. If used pure and too abundantly, it will kill the vines as effectually as would the bugs, for it is nothing but arsenite of copper (often called "Scheele's green" by druggists), and contains a varied proportion of arsenious acid, according to its quality—often as much as 59 per cent., according to Brande and Taylor. But when used with six to twelve parts, either of flour, ashes, plaster or slacked lime, it causes no serious injury to the foliage, and just as effectually kills the bugs. The varied success attending its use, as reported through our many agricultural papers, must be attributed to the difference in the quality of the drug.

We hear many fears expressed that this poison may be washed into the soil, absorbed by the rootlets of the plants, and thus poison the tubers; but persons who entertain such fears forget that they themselves often apply to the ground, as nourishment for the vines, either animal, vegetable or mineral substances that are nauseous, or even poisonous to us. Animal and vegetable substances, of whatsoever nature, must be essentially changed in character and rendered harmless before they can be converted into healthy tubers, and a mineral poison could only do harm by being taken with the potatoes to the table. That any substance, sprinkled either on the vines or on the ground, would ever accompany to the table a vegetable which develops under ground, and which is always well cooked before use, is rendered highly improbable. There can be no danger in the use of sound tubers. But the wise and well-informed cultivator will seldom need to have recourse to Paris green, as he will find it more profitable to use the different preventive measures that have from time to time been recommended.

The poison may do harm, however, by being carelessly used, and it is most safely applied when attached to the end of a stick several feet long, and should not be used where children are likely to play.

THE TRUE REMEDY

consists in preventing them from becoming

numerous so late in the season. Watch for the beetles in early spring, when the vines are just peeping out of the ground. Ensnare as many of them as you can before they get a chance to pair, by making a few small heaps of potatoes in the field planted; to these the beetles will be attracted for food, and you can easily kill them in the morning. Keep an eagle eye for the eggs which are first deposited. Cultivate well by frequently stirring the soil. Surround your fields on the outside by rows of such tender-leaved varieties as the Mercer, Shaker Russett and Early Goodrich; but, above all, isolate your potato field as much as possible, either by using land surrounded with timber, or by planting in the centre of a corn field. Carry out these suggestions thoroughly, and you will not have much use for Paris green, and still less for the scorching remedy.—*American Entomologist and Botanist.*

The Poisonous (?) Tomato Worm.

In reply to Mr. R. Wilson, of Port Huron, who has sent us a specimen, we beg to state that we have never denied the fact of there being a Tomato Worm. On the contrary, we have frequently described it and remarked upon it. But we have denied, and still continue to deny that the creature is poisonous, either from its imaginary sting, or its projected spittle. An idea has somehow or other got into the heads of the people of this country that the poor innocent Tomato Worm is as deadly as a rattlesnake, and it seems as if no amount of contradiction or proof would ever persuade them that such is not the case. We had almost intended giving up the attempt to enlighten the mind of our readers on this subject, but our correspondent's note, and a recent paragraph in the newspapers, induce us to recur to the matter once more. The latest story is that an inhabitant of Dundas was sitting under a butternut tree, quietly cogitating upon things in general. Presently, he observed something like a bur upon his coat, and on attempting to remove it, was startled to find that it was not only alive, but also stung his finger severely. At once there flashed across his mind all the terrible stories that he had heard and read about the deadly Tomato Worm, and he began to think that his hour was come—that he was about to add one more to the long list of victims slain by this venomous beast! He rushed to the house—he sent a swift messenger for the doctor—and meanwhile he "kept his spirits up by pouring spirits down!" Ere long the poison began to work upon him—he collapsed—his senses left him—his affrighted friends beheld, they thought, a dying man. But, heaven be praised! by and by he began to recover—his senses came back to him—in due time he was restored to health. Surely, you will say, this was a clear case. But no; think a moment. The man sat under a *butternut tree;* that is not the place where tomatoes are usually grown, and not a single syllable is told us about any tomato plants being anywhere near. Secondly, the worm on his coat *looked like a bur.* A Tomato Worm, as is plain from the specimen sent us, is perfectly smooth, with the exception of a tail at one end, and no more like a bur than a horse is like a porcupine. Thirdly, there *is* a spiny yellowish-coloured caterpillar—the larva of the Io Emperor Moth—that looks very like a bur when coiled up, and whose sharp spines, as we have several times mentioned lately, possess the property of stinging like a nettle when incautiously handled. This worm feeds upon a variety of forest trees, but never, to the best of our knowledge, upon the tomato. We have no doubt that it was the spines of this insect that stung the man of Dundas, and that it affected him rather more severely than usual, just as we have known a man inclined to erysipelas forced to put his arm in a sling by a mosquito bite. We have often handled this insect, and thrust its spines into our fingers on purpose to try its powers, but have never experienced more than a transitory pain and trifling inflammation exactly like that produced by a nettle. Fourthly, it is a well established fact that people often become seriously ill, and sometimes die, from mere fright. Might not this have had something to do with the wonderful case at Dundas? And lastly, it appears to have been quite forgotten that the practice of "pouring spirits down," even for the seemingly innocent purpose of "keeping spirits up," has occasionally the effect of producing insensibility, when strict moderation is not adhered to. Now, we put it to the reader, is it not better as a rule to arrive at conclusions by some more gradual and safe method than by the process of jumping?

The Hop Louse.

The first appearance of anything connected with the lice in the spring, that I have discovered, is a small green aphis on the under side of the leaf from about the first to the tenth of May. It has much the appearance of a small green grasshopper, being at first not more than one-sixteenth of an inch in length, and, if disturbed, moves around quite lively, but seldom leaving the under side of the leaf. They grow to be about three-sixteenths of an inch in length, and mature, the first of them, about the first of June, when their feet become fastened to the leaf, and, shedding their skin, they become a fly. When the fly first comes out it is a very light red, with the tips of its wings having a milky appearance. The wings soon become clear, and the colour grows to a darker red as they mature. They are as active in five minutes after they are out of the skin as they ever get, for they seldom leave the hill on which they are grown, unless in heavy winds. At the time of their first appearance the vine is from four to six feet up the pole, the aphis continuing to increase and undergo the change as above till the last of July or first of August.

After the fly has arrived at the age of from two to three weeks, they begin to deposit lice on the under side of the large leaves, low down on the pole, where they are shaded, and ascend the pole as foliage affords shelter from the sun. The aphis cannot stand the heat of the sun without shade, as they die at once when shook from the leaf to the ground in the middle of the day.

The lice, being all females, commence laying live lice, if the weather is warm, when about eight days old, and when about fifteen days old have made a deposit of from fifteen to thirty each, when, by old age, or having fulfilled their mission, they die. Their colour when young is light green, and darker as they advance. The young grow up and go through the same process and transformation for about six generations in one season, the last being the one that damages the crop, as the former remain on the leaves, and while there I have not discovered that they do any particular damage except the amount of sap they take for support. But when the fruit is so far advanced as to be ripening off, it draws on the root for all the strength, the leaves begin to mature, and the lice are forced to leave them and go to the fruit to prevent starvation. Then the first damage shows itself, the hop assuming a watery appearance, then turning dark-coloured on the inside and looking as though struck with mildew (as some have seen fit to call it rather than say they have lice on their hops). I have seen acres spoiled by turning dark in six hours, through the effect of a heavy fog on a damp day. So far there has not been a male louse in the yard, but during the last of the picking season and the last generation, some flies are seen with wings about twice as long as their bodies. These are the males, and at this time impregnation takes place for the coming year. The last seen of them is on the ground, and they soon disappear, the impregnation passing through at least three transformations.

The young lice come from the mother backward, and walk off to a safe retreat at once. I have been unable to follow them through the winter. I have tried fumigating them with charcoal and sulphur, but the lice will stand more of it than the hops. The only remedy I know of is a cold storm from the first to the tenth of August, which will clean them out, every time, so that they cannot get in sufficient force to do any damage till the very last day's picking.—E. F. L., in *Rural New Yorker.*

Let me strongly advise the incorrigibly careless to have nothing to do with bees, either on my plan of management, or any other, for they will find both time and money almost certainly thrown away.—*Langstroth.*

Correspondence.

Capacity of Root-Cellar, &c.

"Teacher," writing from Fenelon Falls, wishes to be informed what space should be reckoned in building a cellar for roots, grain, &c. The capacity of the bushel is 2150 inches; hence the ordinary rule for estimating the number of bushels of grain in a bin is to multiply together the three dimensions of the bin in inches; and divide by 2150. The rule can, of course, be easily applied for the reverse proposition of calculating the space required for grain, as well as in reckoning the amount of grain in any given bin.

The rule for measuring corn in the ear is as follows: Measure the length, width, and height of the crib in feet; multiply these three dimensions together, and the product by 4; cut off the last right-hand figure; those to the left express the number of bushels of unshelled corn. If measured in inches, multiply the three dimensions together, and divide the product by 4,300 (twice 2,150, corn in the ear occupying twice the space of shelled corn or grain); the quotient will be the number of bushels.

In calculating for roots, it will be sufficiently accurate for all practical purposes to allow one cubic foot and two-thirds (1⅔) for each bushel, or 16⅔ feet (in decimals about 16.66) for every ten bushels.

An easy mode of reckoning will be to use the rule for measuring corn in the ear; to the quotient thus obtained add one-half the amount, and you will have about the quantity of bushels of turnips in the same space. For example, suppose:—

A space of 10 feet x 20 feet x 8 feet = 1,600 feet. Multiply by 4 = 6,400 feet. Cut off the right-hand figure, leaving 640, the number of bushels of shelled corn. Add half this. 640 and 320 make 960, which would be about the number of bushels of turnips to allow for those dimensions. The relative bulk of corn in ear, roots and grain, may be calculated, in reference to the first, as half as much again as the second, and twice as much as the last. Thus, a space that would hold twenty bushels of unshelled corn would contain thirty bushels of roots, and forty bushels of grain.

Surfeited Pigs.

To the Editor.

Sir,—In answer to your Colchester, Nova Scotia, correspondent's question, (see Canada Farmer, July 15, page 260,) I would say that almost any animal having grown "amazingly fast" for ten weeks is in danger of sickness. It argues over feeding; a fault a pig is naturally inclined to, and in this case was tempted to indulge the propensity.

I have wondered if the hog cholera, of which they complain out west in the United States, is occasioned by being fed exclusively on corn. I am of opinion, (but what is the value of an opinion?) that pigs require a mixed diet; that they are by nature omnivorous, that they require a portion of animal food, and, moreover, a mixture of good clean dirt with it. Horses are clean feeders, but they, and especially sucking colts, eat dirt with avidity when they can only get it at long intervals. Pigs get dirt and grubs too, when, as in a state of nature, they live by grubbing.

Heavy losses have frequently resulted to the owners of breeding sows in consequence of keeping them penned up and confined to a diet of meal and milk, or slops.

Young pigs fed liberally with peas are subject to lameness; whether from being too stimulating, (hence inflammation), or deficient in phosphate of lime, (hence rickets), I cannot say.

Inference. Healthy stock is most likely to result from the use of a reasonable variety, and a liberal, but not immoderate, quantity of food.

BRAMLEY.

Hemp.—A correspondent who makes enquiries about hemp is referred to the number of the Canada Farmer for March, 1869, where he will find a full account of the cultivation and preparation of this crop.

The Canada Farmer.

TORONTO, CANADA, OCT. 15, 1870.

The Provincial Exhibition.

The exhibition is over, and the most ungenerous of critics would hardly pronounce it to have been anything short of a most gratifying success. It has afforded to many thousands a most enjoyable holiday, and even the skies withheld the downpour that at one time seriously threatened to mar the pleasures of the occasion. But what is most of all a subject of congratulation is the undeniable proof that has been afforded of the steady and rapid advancement of the country in what most concerns its substantial progress and prosperity. It may not be uninstructive to review briefly some of the principal features of the exhibition, which best illustrate the spirit of enterprise and the growing intelligence at work amongst us.

Taking first of all the exhibition of live stock, the rapid advancement in the art of breeding and rearing is at once apparent. Every year affords a means of comparison; but if the show which has been held during the past week is compared with the one held at Toronto four years ago, the rate of improvement will be far more easily estimated. The country has been immensely indebted to those persons who have boldly speculated in the importation of stock from Europe, and from whose efforts the whole country is now deriving a marked benefit. Prices ranging from six to seven thousand dollars for a single animal, and, in addition, all the risk and cost of transportation, have been paid, and the result is that both in thorough-bred stock and in "grades," the results have been such as to astonish not only our own countrymen, but Americans who have resorted to the exhibition. In imported and home-bred animals proof has been afforded that the first risk and outlay have been wisely and profitably incurred. When we hear of such prices as $775 being paid for a nine months' old heifer we see what an impetus has been given by the introduction of first-class stock. There is no doubt that Canada is admirably adapted to this branch of industry, and that a large and profitable business is springing up in stock raised in this country from imported cattle.

Good mutton is not to be despised, and there is yet room for improvement in the breeding of sheep for the consuming markets. The display, however, of those on which we rely for our home supply of wool was very encouraging.

Not less so was the exhibition of pigs, although limited, probably through the want of due care in the arrangements made for their accommodation. It was difficult to realize, as one passed the pens of Berkshires, Suffolks and other well-known English breeds, that the ground one trod was that of a transatlantic Colony, separated by 3,000 miles of water from the mother country. Before these comely importations, the long-legged, long-snouted aboriginal porker is fast disappearing. There is an opening for a vastly increased export trade in pork, and too much encouragement cannot be given to the careful raising of the most profitable description of hogs, a matter, by the way, not hitherto sufficiently appreciated by many of our farmers.

In the improvement of the breed of horses, as well as in the importation and raising of cattle, it was evident that a spirit of enterprise had been at work, and with equally satisfactory results.

Nor in developing the productions of the soil is Canada destined to stand second to any other country. Apples that have no rivals, luscious pears that will stand comparison with any produced in Europe, and grapes approaching very nearly to perfection, afforded specimens of what in autumnal fruits this country is

already capable of doing. In grain, in field roots, in the many varieties of the gourd tribe, in garden vegetables, and notably in potatoes, the prolific nature and adaptability of the soil was splendidly illustrated.

The many ingenious machines for lessening and assisting farm labour found crowds of admirers, and gave the most conclusive evidence of the growing intelligence brought into play in connection with economic agriculture.

What is wanted, however, both as regards agricultural machinery and other mechanical inventions is a longer term for their exhibition. We suggested on a former occasion that arrangements might be made for a show of this description, which should extend over three or four weeks, and thus repay the owners for the cost and trouble of moving and fitting their machinery. It would have the effect probably of inducing a much larger number to exhibit, besides affording a far better opportunity for study and examination. An exhibition of machinery and manufactures at Toronto, commencing say on the first of September and being open for a month, would aid rather than detract from the Provincial exhibition in October.

Perhaps in conjunction with machinery and manufactures a stimulus might be given to Art by combining an exhibition of pictures. It must be a very poor picture indeed that does not attract some one, and the crowd in the north wing showed how much interest its contents excited. But, taken individually, there was really nothing of a particularly striking character to be seen there. Nothing, that is, on which an artist appeared to have laboured to show how much real genius he possessed. The collection had too much the appearance of a number of friendly contributions rather than of competing works of art. Professional artists are doubtless much engaged in the work of instructing others, and amateurs of sufficient talent to make a striking display, are necessarily few in number. But, having regard to the immense and direct influence the painter's art has on the mind of a nation, it would be well to consider by what means any existing defects in this department may be most effectually remedied and higher efforts successfully encouraged.

Passing over the very creditable exhibition of miscellaneous articles, there are two other sections which possess a certain domestic interest: the Poultry and the Apiarian departments. Of the first, although some good specimens were exhibited, it must be acknowledged that, on the whole, it was a failure. Several of the leading breeders were not represented at all, and both in quality and variety the show was this year certainly wanting. So much innocent pleasure and amusement are to be derived from poultry-keeping that it cannot be too generally encouraged.

Bee culture in Canada may be said to be in its infancy. But no one, who listened, either to the discussions of the apiarians in convention, or to the conversation going on around the exhibited hives, could fail to be struck with the great earnestness of the "bee-masters," or the actual love they feel for their avocation. As a source of commercial profit as well as amusement, bee-culture should be promoted as extensively as possible.

In thus reviewing briefly the impressions the Exhibition has created on our mind, it is, of course, necessary to remember that all this marvellous display of industry, intelligence, and energy, is shown in a country that has none of the advantages which great territorial proprietors or vast accumulations of wealth are able to afford to the arts and agriculture of Europe. What we see is the honest result of hard-handed toil, of thought quickened by necessity, or of single-handed enterprise. If we consider under what difficulties, and in how short a time so much has been achieved, we shall be able to form a just idea of the natural gifts of the country, and the sturdy resolution of its people.

The Colorado Potato Beetle.

In another column the reader will find an article on this most destructive insect from the *American Entomologist*—a well-known scientific journal edited by Mr. C. V. Riley, the accomplished State Entomologist of Missouri. The writer, in warning us of the terrible devastation to which we are exposed, proposes a mode of prevention which, we think, ought to be adopted by our Minister of Agriculture, namely, that a price should be set upon the head of the pest, so that a premium should be offered for every hundred, thousand, or ten thousand, captured in Canada, and duly sent in to some competent examiner. As the Fruit Growers' Association have proved in the case of the Plum Curculio, people will willingly adopt measures for the collection and destruction of a noxious insect when they are given so much per hundred for all they put to death, while they will not go to the same trouble for the sake of reaping a far higher reward, the salvation of their crop of fruit, or whatever it may be. We have no doubt that if Mr. Carling would offer to pay a dollar a hundred, or—if that is too much—a couple of dollars a thousand, for all genuine Canadian specimens of the Colorado Potato Beetle, the spread of the pest would be very greatly checked, if not altogether stopped.

Another mode of prevention that we also desire to urge very strongly upon the Government and the inhabitants of the western part of this Province, is the marking off of a tract of country about ten miles in width, all along the border line between the foot of Lake Huron and the head of Lake Erie, with the exception, possibly, of a portion of the eastern shore of Lake St. Clair, and stopping the culture of the potato throughout that whole tract during the prevalence of the pest in the neighbouring State of Michigan. This may seem a hard measure, and too much to demand of the people of that region; but is it not better that they should buy their potatoes for a season or two, than that they should lose their whole crops for years to come, and allow this pestilent creature to desolate the whole Dominion from Sandwich to Gaspe? To mitigate the privation, it might be advisable to allow any one within that region to grow not more than a quarter of an acre for household use, on the condition that it should be isolated from any other potato patch, and that the owner should guarantee to carefully destroy every Colorado beetle that alights upon it. The very least that should be done in the emergency is this restriction of the growth of the crop to small isolated patches, such as can be attended to with a reasonable hope of keeping the insect in check. Large areas it will be next to impossible to protect.

To carry out these regulations in thorough strictness—for nothing else will do—trustworthy persons should be appointed, with proper instructions, in every municipality throughout that portion of the country. But "what a frightful expense," says the ratepayer. Yes, it will be an expense, and it is a serious matter. Were the cholera, however, raging on our bordors, should we not go to some expense to ward off the infection from ourselves? If the cattle plague threatened us from Michigan, would not some stringent regulation be adopted to prevent its crossing the border? Were one quarter of a town in flames, would we not willingly blow up or tear down a belt of houses to prevent the spread of the devouring element? And why not take similar measures of prevention to keep off from our country a foe whose ravages will surely prove as serious a pecuniary loss as any cattle plague or raging fire? If you do not believe it, visit the States of Iowa, Wisconsin, Missouri, Illinois and others, or ask their inhabitants, and you will soon learn the terrible powers of this beetle, and shudder at the thought of its approach.

"Prevention is better than cure." It is far easier, far cheaper to keep the insects out, than to check them when once established in the country.

Notes on the Weather.

During the greater part of September, the rainy character of the season has prevailed, which was very embarrassing to harvest operations. The amount of damage done varies much in different localities. From some quarters accounts reach us of good crops gathered in fair condition, whilst others report small yields or great loss in harvesting. But taking the Province as a whole, the returns will show about an average production of grain, while root crops and fodder will probably be abundant. The meadows and pastures have presented, in consequence of the warm and showery weather, a most unusual greenness of aspect, more resembling the verdure of English fields than the ordinary bare or burnt condition of the land towards the close of our Canadian summers.

The following notes are compiled from the records of the Toronto observatory:—

The mean temperature of the month was 62.4, being 4.4 higher than the average, and 1.7 warmer than September, 1869. Its average temperature was higher than that of any similar month in thirty years, with only two exceptions, namely, 1846 and 1865, which were respectively 63.4 and 64.5.

The highest temperature occurred on the 1st—78., and the lowest on the 20th—45.8.

The quantity of rain was greatly in excess of the usual rain-fall, being 6.794 (average of of 30 years being 3.694). Of this amount 2.285 inches fell on the 15th and 1.200 inches on the 30th. The number of rainy days were eleven, differing only slightly from the usual number. The amount of cloudiness was about the average, and the numbeo of clear days 8; partially clear 15; clouded 7.

Thunder-storms more or less severe occurred on the 3rd, 9th, 15th and 25th, and lightning alone on the 1st, 2nd, and 8th.

The prevailing winds have been from the north and east.

Influence of Cities on the Atmosphere.

Alkali and other chemical works on an extensive scale are more or less found in or near all manufacturing towns in England, and in order to prevent or rather mitigate their deleterious influence on the public health, an Act of Parliament was passed a few years since, subjecting all such works to official inspection. In Dr. Angus Smith's last report, much interesting information is contained as to the effect of large cities, and especially of factories, in contaminating the atmosphere. The following extracts express some of his principal conclusions:—

The rain from the sea (Western Islands) contains chiefly common salt, which crystallizes clearly.

The sulphates increase inland before large towns are reached.

The sulphates rise very high in large towns, because of the amount of sulphur in the coal used, as well as decomposition.

When the air has so much acid that two or three grains are found in a gallon of rain-water, or forty parts in a million, there is no hope for vegetation in a climate such as we have in the northern parts of the country.

Free acids are not found with certainty where combustion or manufactures are not the cause.

Experiments in the direction indicated above may enable us to study and express in distinct language the character of a climate, and certainly of the influence of cities on the atmosphere.

In Manchester, in 1867, the maximum acidity of the rain was 7.39 grains per gallon, and the minimum 0.31.

The total acid in rain collected from various sources bears the following relationship:—

Row, Dumbartonshire.....	100.00	= 1
Whiston, ten miles from Liverpool.....	470.67	= 4⅔
Birkenhead.....	523.20	= 5¼
Liverpool.....	938.21	= 92-5
Waterloo, on the shore	961.98	= 9½
Newcastle on Tyne 1054.73		= 10½
Manchester	1175.54	= 11⅔
Near an alkali work.....1539.27		= 152-5

We can scarcely be surprised, after glancing at this table, at the rapid decay of stone in certain localities, compared with others, and the long endurance of buildings of antiquity which are far from large towns, and in a pure and open air, such as the Parthenon and Pyramids of Egypt.

Alkali works liberate free acid, which is brought down in rain solution, to the great injury of vegetable life. Large brickfields have often been found particularly deleterious in this respect, and to destroy even trees in the direction of the prevalent winds.

Prize List.—We defer, as usual, the publication of the award of prizes at the Provincial Exhibition till the list has been officially revised. In our next monthly issue we hope to give it complete and accurate.

The Pleasant Valley Fruit and Wine Reporter is the title of a new semi-monthly paper, published at Hammondsport, N.Y., under the editorial care of A. L. Underhill, Esq., assisted by an able corps of associate editors, at the subscription price of one dollar per annum. The first number is a very handsomely illustrated eight-paged sheet, full of valuable information concerning grapes and wines, to which subjects it will be specially devoted. This new branch of industry is making great progress in America. We learn from this initial number of the *Fruit and Wine Reporter* that the capital invested in the manufacture of wines in that locality is eight hundred thousand dollars, and the vineyards are estimated to be worth two and a half millions of dollars, and give employment in the various departments to some two thousand persons. The average annual yield per acre, taking the whole acreage in bearing, is three thousand pounds. The vines that have been planted are more than half of them of the Catawba variety, about one-seventh Isabella, and about one-fourteenth Delaware, and the same of Iona. Very few Clintons have been planted, and it is thought by those competent to judge in these matters, that the Clinton has not been sufficiently prized. It is expected that the crop this year will not fall short of six thousand tons, selling to the wine cellars at ten cents per pound. We wish the Pleasant Valley *Fruit and Wine Reporter* every possible success, and shall be happy to place it on our exchange list.

Poultry Yard.

Poultry Keeping on a Large Scale.

The difficulty and frequent failures in keeping a large number of poultry in one spot has often been discussed in these columns. In England the attempt has failed; in France, a very few successful examples have been reported. The only hope of overcoming the difficulties of the enterprise appears to be in giving the poultry a widely extended range. On this subject the experience of Mr. Warren Leland, of the Metropolitan Hotel, New York, as given in a recent meeting of the New York Farmers' Club, and published in several of our American exchanges, is interesting and instructive. He says:—

"I have found that for every hundred fowls you must give up at least an acre. But rough land is as good as any. Hens naturally love the bush, and I lop young trees, but leave a shred by which they live a year or more. These form hiding places and retreats for them. In such places they prefer to lay. I have great success, and it depends on three or four rules, by observing which I believe one can make a good living by hens and turkeys.

"1. I give my fowls great range. Eighteen acres belong to them exclusively. Then the broods have the range of another big lot, and the turkeys go half a mile or more from the house. The eighteen acres of poultry yard is rough land, of little use for tillage. It has a pond in it and many rocks, and bushes and weeds, and sandy places, and ash heaps, and lime and bones and grass, and a place which I plough up to give them worms.

"2. When a hen has set I take her box, throw out the straw and earth, let it be out in the sun and rain a few days, and give it a good coat of whitewash on both sides. In winter, when it is very cold, I have an old stove in the house, and keep the warmth above freezing. There is also an open fireplace, where I build a fire on cool wet days. They dry themselves, and when the fire goes out there is a bed of ashes for them to wallow in. Summer and winter my hens have all the lime, ashes, and sand they want.

"3. Another reason why I have such luck is because my poultry yards receive all the scraps from the hotel. Egg-making is no easy work, and hens will not do much of it without high feed. They need just what a man who works requires—wheat bread and meat. As to breeds, I prefer the Brahmas, light and dark. I change the cock birds every spring, and a man on the farm has no other duty than to take care of my poultry. I have often 3,000 spring chickens."

Classification of Fowls.

W. B. Tegetmeier, the well known English writer on poultry, writes to the London *Field* as follows:—

The question, What is the best breed of fowls? is often asked. It is, however, as difficult to reply to as would be the query, What is the best kind of horse or dog? Before it could be answered, the requirements of the inquirer must be stated, and all the particulars respecting his conveniences for poultry-keeping taken into account.

In the *American Agriculturist* for June, 1870, an attempt has been made to give an extended classification of fowls, arranged according to their merits, regarded from different points of view. This is not exactly in accordance with English experience, and therefore in place of copying it verbatim, I present an arrangement of my own, freely acknowledging my indebtedness for the idea to the above-named journal :—

A. Prolificacy. — Non-sitters — Hamburghs, Leghorns, Spanish, Houdans, Crevecœurs, and Polish. Sitters—Brahmas, Cochins, Dorkings. (For winter layers, Brahmas and Cochin pullets are superior to all others.)

B. Value for Table.—First-rate table fowls for market—Dorkings, La Fleche, Houdan, and Crevecœurs. For home-use—Cross-bred Dorkings and Brahmas, cross-bred Crevecœur and Brahma, Brahmas, Cochins.

C. Hardihood.—Hardy—Brahmas, Cochins, Houdans, Leghorns. Hardy, if with unlimited range — Spangled Hamburghs, Game, Crevecœurs. Delicate—La Fleche, Dorking, Polish, Sultans.

D. Size of Eggs.—Layers of large-sized eggs—Crevecœur, Spanish, Houdans, La Fleche. Layers of medium-sized eggs—Leghorns, Cochins, Brahmas, Dorkings, Polish, Game. Layers of small eggs—Hamburghs, Bantams.

E. Size of Birds.—Large—Brahmas, Cochins, Dorkings, La Fleche, Malays, Crevecœur. Medium—Spanish, Leghorns, Polish, Game. Small—Hamburghs, Sultans, Silkies. Diminutive—Bantams.

F. Activity. — Active fowls — Hamburghs, Game, Game Bantams. Less vivacious—Spanish, Leghorns, Dorking, &c. Very domestic and quiet—Brahmas, Cochins.

G. Incubation. — Good sitters — Brahmas, Cochins, Dorkings, Game, Farm-yard fowls, Bantams, Silk Fowls. Non-sitters—Hamburghs, Spanish, Leghorns, Polish, French Breeds.

This arrangement is probably correct in the main, though perhaps in some respects the experiance of other breeders may not exactly accord with my own.

Rearing Young Turkeys.

Young turkeys are almost proverbially delicate, and many persons have so great a fear of the trouble and uncertainty of rearing them, that they will not make the attempt. I believe that turkeys, with proper management, can be raised as easily as chickens, and with as great a degree of certainty.

I have known poultry women who have reared them for years in succession without losing a single chick, whilst in other hands fifty per cent. or more have gone to the bad.

My own method of procedure is to follow nature as far as possible. I make my turkey nests on the ground; or if in a paved house, in large shallow boxes half filled with mould that can be damped at intervals. The hens, unless they come off regularly, are lifted off to feed, and then supplied with grain with a liberal hand.

When the young ones are hatched they are left undisturbed under the hen until the next day. No attempt is made to cram them; an absurd practice, which interferes most injuriously with the due digestion of the yolk that is absorbed into the intestines at birth, and constitutes all the food required for twenty or thirty hours after hatching.

The first food given them is egg beaten up with an equal bulk of milk, and baked into a soft custard; this is alternated with crumbled bread mixed with milk, to which oatmeal is added in a gradually increasing proportion. Ants' eggs are given if I can get them, but if not the custard is continued for a fortnight or three weeks. Quite as important as any other part of the dietary of young turkeys is the supply of green food, and many persons chop up nettles, onions, etc., with the meal; but if young turkeys are watched when grazing, it will be observed that they prefer eating bitter herbs belonging to the natural family *compositæ*, or compound flowered plants, such as the dandelion, etc. The common lettuce belongs to the same tribe, and I have this year fed largely on it. The greediness with which young turkeys devour this plant is remarkable. At three weeks old a dozen turkey chicks will eat four or five large lettuces in a day, and they even seem to prefer them when running to seed, at which time there is abundance of bitter milky juice in the plants. At the age of a month they will begin to peck a few grains of wheat or barley; but bread and milk, and meal, should form the staple of their food for the first two or three months of their lives.

Most persons say that young turkeys are particularly delicate when they are "shooting the red." This is not to be wondered at when it is remembered that they are generally put on whole grain, without milk, long before they arrive at that age, and suffer accordingly.

Another point of the highest importance in feeding turkeys, or young birds of any kind, is the hour at which they get their first repast. If the birds have their first meal deferred until long after daylight, they have been hungry for two or three hours, and suffer very much.

To be successful in rearing these, or any other young birds, they must either be supplied over night with their first meal, or the poultry maid must be up with the lark. There is no better plan than putting the hen and chicks, for the first month or two, in a closely wired aviary at night, which is open to the early sun, and lettuce and a good supply of soft food can be put under a coop, so that the hen cannot eat it, and there will be found but little left an hour after daybreak. —W. D. Tegetmeier in *London Field*.

Apiary.

Artificial Impregnation.

We are glad to know that some of our Canadian bee-keepers are turning their attention to artificial impregnation of queens. We have succeeded once in three cases tried this season.

J. Maitland, Kilmarnock, writes as follows :—

"I succeeded in introducing the Italian queen received from you all right; her brood is nice and bright; am well pleased with her. The Italian bee, when pure bred, appears milder in disposition than the black bee. I cannot say so with the hybrids.

"I am trying to breed queens and have them impregnated in confinement, on Mrs. Tupper's plan. I have not proved it out as fully as I expect to this season, but I have plans working which I think will test the matter beyond dispute.

"About two weeks ago I took two young queens out of my impregnating boxes and put them into hives about five miles away, where there are none but black bees kept. If they produce pure Italians it will be another proof of the system. A few days since I had the bees and queen leave one of my nucleus hives—no doubt for want of brood in the hive. I succeeded in catching the queen, placed her in the impreguating box, where I kept her for about 48 hours, and returned her to a nucleus hive; in 2½ days she was laying eggs.

"I had also a queen bee hatched without any wings. I tried the experiment with her, but when I was returning her to the nucleus hive, a bee stung her and she died. I was pretty sure she had been impregnated, as I found two dead drones. I am continuing the process; perhaps I may get another wingless queen ere long."

It is not necessary to remove the small hives away if they have plenty of honey. The queens can be returned to the hive, and all the bees kept confined until she lays.

Productive Honey Season.

Mr. Wells, of Thurlow, writes :—"With reference to last year's yield of honey, I can fully endorse the remarks of Mr. J. H. Thomas in your journal. Comparing my returns this year with those examples of productiveness cited in his article, I find that mine are even more favourable.

"Fifty-eight stocks in the spring, and one half of them nearly starved, owing to the poverty of the previous year, have given me an aggregate of one hundred and two stocks, all in good condition. The yield from these for the season has been over 2,700 lbs. One stock alone netted over 150 lbs., from the top of the hive, and in addition a large swarm, from which in turn I got two boxes of 14 lbs. each. The Italian bee I find an excellent worker."

Beware of Humbugs.

I have been informed that some unprincipled fellow is travelling through the township of Clarke, imposing upon bee-keepers, and taking their money for instructing them how to remove the honey from the hive, and still have the bees do well, by giving them a compound or preparation made up by himself. It appears that he avoids or passes by the more intelligent bee-keepers, and plays his "little game" with such as are not well informed in bee culture.

I have repeatedly called attention to these unprincipled fellows in this journal, and warned bee-keepers against having anything to do with them, and I again repeat the warning, for every stock so treated is ruined, and every five dollars paid for such a process is worse than lost.

J. H. THOMAS.

Whence Came Our Honey Bees?

That our common honey bees are of foreign origin is universally admitted; but it is still a matter of dispute whence they came, or when they were introduced; though it is generally supposed that they were brought from England. Those in the Eastern States may have been thence derived; but we doubt whether those in the Middle States came from the same quarter.

In a pamphlet republished in the "Historical Magazine," Vol. VI., September, 1862, page 268, entitled "Good Order Established" in Penneylvania and New Jersey, in America, by Thomas Budd, originally printed in the year 1685, occurs the following passage, referring to those then colonies:

"Bees are found, by the experience of several person that keep them, to thrive very well."

Hence it is obvious that bees must have been kept in Pennsylvania and New Jersey long enough prior to the close of 1685, to make the term "experience" applicable to those who kept them. It is also well known that bees were abundant, even in the forests of Pennsylvania, while they were yet comparatively rare in New England, where they were introduced from the "mother country" in 1680. They must thus have been derived from a distinct importation, if not from a different stock. We incline to the latter conjecture, and for this reason: We know that the bees in the Middle States were free from the ravages of the bee moth till about the year 1805, and that this pest came thither from New England. How long the insect existed there, before it became so devastating as to attract the notice of bee-keepers, is not known; but its progress south and west is traceable, and establishes the fact that it was a stranger south of the Hudson. Though not noticed early, it was doubtless imported with the first bees carried to New England, for it is a fact that importations of Italian bees, whether made from Italy direct, or from Germany, always bring with them the moth or the miller, or both. This we believe is invariably the case. We are credibly informed that the trunk and wardrobe of Herman, who accompanied the stocks imported by Mr. Parsons, of Flushing, were thus infected; and observation shows that it is so common an occurrence that it may be regarded as invariably true. It follows, we conceive, that the bees of Pennsylvania and the Middle States came from a country where the bee moth did not exist. That country, and the only country in Europe thus free and having early communication with the New World, is Sweden; and the Swedes and Finns had settlements in Pennsylvania and Delaware as early as 1627. Mead was their favourite beverage; and they would certainly be likely to carry with them, in their emigration, the means of supplying themselves with it, and would thus introduce a bee *not troubled with the moth*. *They* could do this, and emigrants from no other country could; for the bee moth was not known in Sweden till within the last twenty years—the desire to possess the Italian bee having carried that baneful pest thither also.—Editor *American Bee Journal*.

Poetry.

Sword and Plough.

FROM THE GERMAN OF WOLFGANG MULLER.

There once was a Count, so I've heard it said,
Who felt that his end drew near;
And he called his sons before his bed,
To part them his goods and gear.

He called for his plough, he called for his sword—
That gallant good and brave—
They brought him both at their father's word,
And thus he his blessing gave:—

"My first born son, my pride and might,
Do thou my sword retain,
My castle on the lordly height,
And all my broad domain.

"On thee, my well-loved younger boy,
My plough I here bestow;
A peaceful life shalt thou enjoy,
In the quiet vale below."

Contented sank the sire to rest,
Now all was given away.
The sons held true his last behest
E'en till their dying day.

"Now tell us what came of the steel of flame,
Of the castle and its knight;
And tell us what came of the vale so tame,
And the humble peasant wight."

Oh ask not of me what the end may be;
Ask of the country round;
The castle is dust, the sword is rust,
The height but desert ground.

But the vale spreads wide, in the golden pride,
Of the autumn sunlight now;
It teems and it ripens far and wide,
And the honour abides with the plough.

Household.

Preserving Eggs

A sensible writer in the *Western Rural* gives several methods of preserving eggs, as follows:—We have tried several modes and never found any difficulty in keeping eggs any desired length of time for culinary purposes, seemingly as good and fresh as when first laid. Our principal mode has been that recommended by Mons. Chas. Jacque, which, from several years' experience, proved one of the best we ever tried; having succeeded in keeping eggs nice for use from six to eight months after they were laid. He says:—The most certain and most lasting mode of preservation consists in covering the eggs in a jar filled with lime water, recently prepared, and keeping them in a cool place. The lime water is prepared from quick lime r that which has been slacked but lately, by placing it in a quantity of water greater than would cover the eggs. The milk of lime which is thus formed is allowed to stand several hours. The clear liquid which separates itself from the excess of lime used is the lime water, which is poured off for use. Lime water not only prevents the evaporation, since the eggs are plunged in the liquid, but the alkali which it holds in solution closes the pores of the shell, and prevents all fermentation, either of the eggs or of the organic matter which the water might contain."

We have had good results also from packing eggs in very dry barrel salt, which have kept for months in a well preserved state. Our mode was to stand a box or stone jar in a cool place in the cellar, put therein a layer of salt, then one of eggs, with the large ends downward, taking care that the eggs did not touch one another; continue this practice until the jar or box is full; cover the box, and let it stand without disturbing until the eggs are needed for use. We have packed eggs in this way in June and July, and found them in January and February perfectly fresh in looks, and having no stale or musty taste when brought to the table.

How to Make Old Salt Pork as Sweet and Tender as Fresh Pig's Meat.—There is no humbug about this, though it may look like it. We have tried it, and we know the person who discovered it, Mrs. Washington Champion, who thus has fresh, tender meat the year round. It is simple, but requires some labour. The principle has been approached before. The thing is done by boiling and frying alternately, and finishing off with sweet milk, boiling and frying also. Here is the receipt: Boil slowly in several waters till sufficiently freshened. Then boil in another water till reduced to a fry. The frying should not take long—about fifteen minutes. Fry for a while till about half done or less, so as to get the water well out, else it will be snappish thereafter. Turn off the fat and pour on sweet milk, which boil down another fifteen minutes, and finish by frying brown. Now you have something that is perfectly tender; the oil is not all fried out, as is the case with some meat. The lean is tender with the rest. Pork even tainted or otherwise objectionable, may thus be treated to great advantage. Will each house-wife that reads this receipt try it, and get the benefit of it? It is no humbug.—*Country Gentleman*.

Agricultural Intelligence.

Provincial Exhibition.

The twenty-fifth annual exhibition of the Provincial Agricultural and Arts Association of Ontario was held in Toronto during the first week in October. The weather previously had been wet, and on the opening day of the Fair (Monday) rain came down with scarcely any intermission, making the ground nearly everywhere muddy and swampy. But the succeeding days, though not bright, were fair, and the show was a complete success. The following record is compiled from the reports made each day, and consequently describes the events as transpiring rather than past. The account here given is also confined to those departments which are of more immediate interest to the agricultural reader.

HORSES.

BLOOD HORSES.

As in former years there are only a very limited number of entries in this class. The show of blood horses at our Provincial Exhibition presents a rather unfavourable comparison with other classes, more especially as regards numbers. We consider the show of blood horses as a class only middling, although there are a few very good specimens of the blood horse exhibited. The class for aged stallions presents the largest numbers of entries, and several valuable and well-known animals are shown, as "Jack the Barber," by "Vandal," a favourite Canadian sire; "Extra" by "Endorser," out of "Natura." "Extra" is very well bred, and was a first-class racehorse, and three years ago he left Kentucky for the sum of seven thousand five hundred dollars. Such a fine horse must prove a desirable acquisition to this country. In the list of entries is the old horse "Kennet," who has competed successfully in former years, but in the present exhibition we expect he will have to succumb to younger competitors.

In young stock the entries are very few indeed, and the principal exhibitors are the Messrs. White, of Bronte, Mr. Shedden, of Toronto, and Dr. Morton, of Bradford. The Messrs. White always compete largely in this class. Among the young animals our choice is the colt by "Lightning" out of "Vinnie Ream;" he is a beautiful bay, of fine size and action, and shows many of the fine points of his illustrious sire, and, judging from present appearances, he cannot fail to be a racehorse. Mr. Shedden also shows "Julia Adams," with a handsome colt at her foot by "Thunder."

Although several of our enterprising agriculturists and breeders are certainly deserving of every encouragement for their importation of blood stock, there is yet great room for improvement. We have quite enough of thoroughbred stallions throughout the country; our deficiency consists in the limited number of well-bred mares. Many of the mares at present used for breeding purposes have been put to the stud after a severe racing campaign of a number of years, thereby becoming enervated and in a great measure unfitted for successful brood mares. We believe it would be well worth the attention of our breeders, and also well repay the outlay, to import pure bred and young mares of good size, and put them to the stud before being weakened by severe training and racing. No doubt the raising of half-bred horses proves profitable in many cases; but the thoroughbred will always command the highest price, if he has size and style. Our severe climate may somewhat militate against the proper development of the thoroughbred, as compared with milder climates, such as Kentucky, Virginia, &c.

The show of heavy draught horses has never been excelled at any previous Exhibition held in this Province, and the turn out of to-day, both as regards excellence and numbers, amply testifies to the fact that Western Canada possesses the finest heavy draught horses to be met with on the continent of America. Of late years breeders have been stimulated by the large prices realized for horses for the New York and other markets. A great many of the horses shown have been imported from England and Scotland, and Canadian enterprise has always secured the best specimens. In the class for stallions, four years old and upwards, there are twelve entries, and nine of these are imported. Mr. Kemp, of Weston, again exhibits the beautiful bay horse, "England's Glory," one of the finest horses of his breed. He is the winner of several first prizes at the Provincial Shows, and although only five years old, he weighs upwards of twenty-one hundred pounds. Mr. Robert Ferris, of Richmond Hill, shows his four year old horse that gained the first prize at London last season. "Sir Walter Scott," the property of Mr. Porter, of Darlington, is again on the grounds. Mr. Buckland, of Guelph, shows a very fine young horse, bred by Mr. Wilson, of Bayham Hall, Suffolk, England. We believe the show of aged stallions cannot be surpassed at any exhibition in Britain.

There are eight competitors in the three-year old class. Mr. Jas. Lawrie, Scarboro, shows his two imported horses, "Tinto" and "Farmer's Fancy." They are both fine specimens of the Clydesdale, and were bred by that well-known breeder, Mr. Muir, of Hardington Mains, Lanarkshire, Scotland. Mr. Kitchen, of Whitby, shows a very fine Canadian bred horse, equal to many of the imported ones.

There are twelve two-year old stallions shown. Mr. Duncan McConnachie exhibits his grey colt, that gained the first prize as a yearling. He is a very fine young horse of perfect symmetry. One of the finest young horses at the exhibition is the two-year old colt, the property of Mr. Ferris, and imported two weeks ago from Scotland. This colt is one of the best ever imported into this country; he gained the second prize at the Highland Agricultural show, in July last, and he is likely to be placed in the first position here. Mr. Simon Beattie exhibits a very stylish colt, bred by Joseph Hope, of Cumberland, England. Mr. John Beith, of Clarke, Mr. McFarlane, of Pickering, and Mr. Morrison, show very good horses.

Of yearling colts there are five entries. Fourteen fillies are exhibited, five three-year olds, six two-year olds, and three yearlings. Mr. Jeffrey, Whitby, shows a filly by Conqueror that is likely to be placed first in her class. Mr. Davidson, of Pickering, has his filly that gained the second prize at London, and Mr. Neal Taylor is again present with the filly that gained the first prize as a yearling last season. In this class the well-known breeder of horses, Mr. Beith, of Darlington, is also an exhibitor.

There are twelve brood mares exhibited. Mr. McConnachie shows two, both bred by exhibitor, one of them is a superior animal and will be hard to beat. Mr. Beith, Mr Davidson, and Mr. Crawford, also exhibit excellent mares.

In section ten, Mr. Hendrie, of Toronto, shows a pair of handsome grays, and Mr. Simon Beattie a pair of imported Suffolk mares, five year olds—their combined weight being upwards of thirty-four hundred pounds. D. McLean, York, and Morrison, Scarboro', also show very fine teams.

On Wednesday the Judges commenced their task of judging the blood stock. The entries being few there was very little difficulty in deciding the prizes. Dr. Morton gained the first prize for aged stallions, with the chestnut horse "Extra," who also received the diploma for the best horse of any age. Mr. Shedden's colt, by "Lightning," was much admired, and received the first prize in his class.

The road and carriage horses were the next on the list, and in the section for aged stallions there were twenty-six entries. The horses exhibited were mostly superior animals, and the Judges experienced considerable difficulty in deciding. Mr. Orr, of Georgetown, was again successful with his horse by "Whalebone," who was also placed first on the list at the London and Hamilton Exhibitions. He is a very fine horse, possessing size, strength and action. Mr. Buckland, of Guelph, exhibited an imported coaching horse, of good style and symmetry, and bred by Mr. Harrison, of Yorkshire, England. This horse, although it was a splendid animal, failed to secure a prize. In the class for three year olds, the well-known importer of valuable stock, Mr. Simon Beattie, showed the imported horse "Grand Turk," a very promising horse, of superior style and action.

The two year olds and yearlings were quite a show of themselves. Mr. Simon Shunk, Vaughan, gained the first prize with his yearling colt, by "King Tom." Messrs. Lake & Fraser, of Fredericksburg, showed a pair broke to harness. The Association's Diploma for best stallion of any age, was awarded to Mr. Orr's horse.

In the class for French Canadian stallions there were six animals exhibited. Mr. R. Wells, of King, secured the first prize with an exceedingly handsome horse, of perfect build and action. Mr. Sylvester, of Scarboro', was awarded a prize for his horse "Montreal Telegraph." The road and carriage fillies were numerous, and some most excellent animals were exhibited.

Immediately after the prizes had been awarded in this section, the prize animals were paraded around the Judges' stand, and minutely inspected by His Excellency the Governor-General, and also by the Lieutenant-Governor, both of whom seemed much pleased with the handsome show of horses.

The matched pairs of carriage horses, although very good, were not equal to the show of some former years; this year they were arranged under two sections, the one for horses sixteen hands and upwards, and the other for horses under sixteen hands. When placed under the standard, only three of the competing teams were found to stand the measure

Mr. Grand, of Toronto, and Mr. Carpenter, of Whitby, showed two very good pairs of heavy carriage horses.

For horses under sixteen hands, a pair of handsome and good stepping greys were awarded the first prize. Of single carriage horses there were upwards of forty entries, and as in the preceding section the show was not quite equal to that of last year's Provincial.

There were sixteen saddle horses entered, and the first prize was awarded to a handsome chestnut mare, the property of A. Smith, V. S., Toronto. In this class Mr. Hendrie, and Mr. Leys of Toronto, exhibited very fine animals. After the saddle horses were shown, the ponies came forward, and considerable amusement was afforded the spectators by a good contest of speed between two diminutive specimens of the equine species.

AGRICULTURAL HORSES.

The Province of Ontario cannot be surpassed for horses of the above description, and the exhibition of the agricultural horses proves highly attractive to the farming community. The first on the list is the aged stallions, twenty-one entries. In this section the judges had a difficult and arduous task to perform, as a number of the competitors were very evenly matched. The red ticket was given to a brown horse by "Coachman," the property of Mr. Coultor, of Brampton. The winner of the first prize stands over sixteen hands high, with strong back and fine head, and action like a carriage horse. Mr. Crawford, of Scarboro, showed a very useful looking animal. Two or three of the animals shown appeared better fitted for the heavy draught than this class.

The judging of the horses was finished at noon Thursday. The show of heavy draught stallions was particularly fine. England's Glory was awarded the first prize, this being the third year he has gained a first prize at the Provincial. In the three-year old class Mr. Mason, of Tuckersmith, Huron county, gained the first prize with his brown horse bred by Mr. Green, Lincolnshire, England. Mr. Mason's horse is a perfect model of symmetry.

In the two-year old class the chief attraction and winner of the first prize was Mr. Robert Ferris's recently imported colt A. 1, bred by Mr. Kerr, of Castle Douglas, Scotland. As we formerly mentioned it was the general opinion that this colt was the best specimen of the heavy draught on the ground.

The colt stands nearly sixteen hands high, is a beautiful brown, with a white stripe on the forehead, long rangy nock, short back and powerful loins, and is an excellent mover for a horse of his class. Such a valuable animal is likely to prove of great benefit to the stock raisers of this country, and we are sure Mr. Ferris will meet with that encouragement which his enterprise deserves. When the three winners—Mr. Mason's horse, England's Glory, and Mr. Ferris's colt—came together to compete for the diploma for the best stallion of any age, the Judges, after a careful and minute inspection awarded the red ticket to the latter. This decision was received with applause by the spectators around the ring. In the afternoon all the prize takers were exhibited together, and it was the universal opinion that the present exhibition of horses has never been equalled in this country. The careful decision of the Judges has given general satisfaction.

CATTLE.

By 9:30 a.m. Wednesday the Judges in the cattle classes got to work, and did not get through till late in the afternoon. In the Shorthorn and Hereford classes, they gave great encomiums on the stock brought in, and the newly imported stock of Mr. John Miller, of Pickering, elicited high praise from them. In some of the Shorthorn classes great difficulty was found in coming to a decision upon the merits of the animals presented for their inspection, and the services of J. R. Page, of Sennett Co., N.Y., and J. Mackelcan, of the *Canada Farmer*, were more than once called in to assist in the decisions. George Miller's herd was detained on the way from Northern Ohio State Fair, and did not get up in time.

SHORTHORNS.

In aged bulls seven came into the ring, and after much discussion the prizes were awarded, 1st to "Oxford Mazurka," 2nd to "London Duke," and 3rd to "Ontario John." A fairer one could not be given. In three year old bulls ten came into the ring, a tolerably even lot, and not much to choose from, nor any of particular merit. 1st prize goes to "Oxford Chief," 2nd to "Sir Colin Campbell," and 3rd to "Darling Duke"—all red and white bulls. Eight came in of two year old bulls; among them we have the finest lot on the ground, and "Fawsley Chief" deservedly gets 1st, while "Bell, Duke of Markham," is placed 2nd, and "Grand Duke of Cambridge" 3rd—a decision that might well be reversed to be satisfactory to good judges. In the yearling bull class only five come in; 1st goes to "Kosciusko," as we expected; while "President Grant" gets 2nd, and "Orion" 3rd. In the bull calf class there are no less than sixteen enter the ring. "6th Grand Duke of Moreton" easily obtains 1st; but there is much diversity about the other prizes, which are finally awarded, 2nd to "Sir Henry," and 3rd to "Joe Johnstone." The whole class is good, and another year will doubtless see some much improved, while others may go down. The 1st prize one is a most promising animal for the future. Thomson's newly imported "Grand Duke of Orange" though entered, was not shown. For the diploma six enter, and it at once goes to "Fawsley Chief," that may be considered as the very best Shorthorn bull now in Ontario. The aged cow class is a most magnificent one, and can hardly be exceeded anywhere. Nine enter, and after much time spent, and a close and critical examination, the prizes go, 1st to "Cherry Bloom," 2nd to "Rose of Strathallan," and 3rd to "Gola," all imported from Great Britain. The three year old class only brings out five, but they are all first-class. 1st to "Clara Barton," 2nd to "Miss Margaret 4th," 3rd to "Dominion Belle." These decisions are somewhat open to criticism, and a reverse position of the 2nd and 1st prizes would probably be more correct; and "Queen of May" is certainly better than the 3rd prize cow. In 2 years heifer class, six enter, and the 1st prize goes at once to "Minnie Annandalle," just imported; "Rosamond" being placed 2nd, and "Cambridge 10th" 3rd—a position that might well be reversed with credit to the judges. In the one year old class there are six in the ring, and a fine lot they are. The competition for 1st is close between "Christabel" and "Sylvia," both imported this Fall, but the former is lame from getting hurt in her stall, and so "Sylvia" gets 1st, while "Christabel" is placed 2nd, and "Empress" is placed 3rd. In the heifer calf class, nine come in; 1st goes to "Princess," 2nd to "Rosa Bonheur," and 3rd to "Lady Bell." For the herd prize, there are but two herds; that of F. W. Stone, comprising bull "Grand Duke of Cambridge," cows and heifer "Isabella 12th," "Miss Margaret, 4th," "Cambridge, 10th," "Morning Glory," and "Duchess of York, 8th;" and that of John Miller, comprising bull "Fawsley Chief," and cows "Cherry Bloom," "Rose of Strathallan," "Gola," "Lorena," and "Nelly Bly." Miller easily gets the prize, and the judges say a better herd has never yet been shown, every animal in it being first-rate.

HEREFORDS.

As will be seen by the prize list, Mr. Stone had the field to himself, though he is beaten for 1st prize for aged bulls, which goes to "Robin Hood," a bull of his own breeding, though now out of his hands.

AYRSHIRES.

The competition in this class is very close and keen. Mr. Laurie's aged bull "Avondale Farmer," 1st prize, is not easily beaten. J. L. Gibb, of Compton, Quebec, had entered several of his fine herd, but none of them put in an appearance. Mr. Thomas Thompson, of Williamsburgh, has no less than 8 head imported this fall, arriving from sea only two weeks ago, and he gets many prizes with them. His 1st prize aged cow, "Diamond," is a fine one, as is J. P. Wheeler's 1st prize three year old cow. Mr. Thompson's imported 1st and 2nd prize two year old heifers, "Rossie, 3rd," and "Rossie, 2nd," are good ones.

GRADES.

The class for grade cattle embraced only 41 entries, but though not nearly as numerous as one would expect to see, nevertheless, as regards quality, contained many animals little inferior to thoroughbreds, if not themselves thoroughbred. All that were shown were evidently crosses of short-horn blood on native stock, up to an extreme point, and the prizes went mostly to men who are large breeders of short-horns. There is something wrong about this. The grade class is the only one which the generality of farmers in Canada can fairly expect to have to themselves, and get some encouragement for using thoroughbred males to their cows, and it is hardly fair to them that the great stock-breeders, in addition to carrying off the prizes in the classes of which they make a specialty, should bring animals that are practically purebred to contend against the more humble efforts towards improvement of their less fortunate brethren, who have neither the capital nor advantages they have. It might be worth while for the Association to consider whether it would not be advisable to restrict the entries in the grade classes to animals of native stock, having less than four crosses of pure blood in them, and also to give prizes for females of each grade cross, say Short-horns, Herefords, Devons, and Ayrshire, so as to bring out the respective merits of each cross on our native stock, and show what each can attain to in its own sphere of improvement. This would be fairer to the small farmers, and give at least a modicum of encouragement in their efforts at improving the general stock of the country.

SHEEP.

The regret which the miserable condition of the sheep pens could not but cause was aggravated when at length on Wednesday morning the animals were brought from various quarters, where they had as it were been hidden, to make their appearance before the judges; for a finer lot of sheep in all the classes has never, perhaps, been seen at a Provincial show. The chief breeders of this stock in Ontario were present to maintain their reputation by specimens that had not before been surpassed; and several new and very valuable importations added an unwonted interest to the exhibition. It was extremely unfortunate that the public should not have enjoyed a good opportunity of seeing the display. Almost the only dry spot to be found in the space allotted to sheep was a planked causeway between the two centre sheds. On this flooring the judges took their station, and the animals were brought before them in succession for examination; while the throng of spectators, eager to have a sight of the various lots, crowded around the judges, and very much hindered and embarrassed them in the discharge of their duties. Every exhibition shows more and more the importance of having judging done early, and before the general public are admitted to the grounds. Until arrangements are made to secure this, the judges can hardly escape the annoyance of a promiscuous crowd about them, and visitors will in most cases fail to gratify their legitimate

curiosity as to the awards. When these are decided and ticketed, a much greater interest is felt by the spectators.

In regard to the total number of entries, there is a falling off from last year, but this is entirely due to a decrease in the class of Leicesters, and is nearly counterbalanced by a marked increase in the number of Cotswolds. The other classes, in the two years, numerically correspond very closely. The Cotswold sheep are a remarkably fine lot. In aged rams the first prize was awarded to Mr. John Snell, of Edmonton, for a very grand specimen of the breed, who thus takes precedence of Mr. Miller's imported animals. The 2nd prize was given to one of four remarkably well-bred sheep that came out to Mr. Miller last year, but had not previously been exhibited in this country. James Russell, of Markham, took the third prize.

The shearling rams were a very large and a very meritorious class, in which all the principal breeders competed, but Mr. Stone swept the honours with his two beautiful imported shearlings that arrived in the Province a few days ago. Their wool is of remarkably fine quality, and though not large they are first-class specimens of the breed. In the section of ram lambs, also very numerous, Mr. John Miller took the first prize, and Mr. Russell, of Markham, the rest. In aged ewes Mr. George Mitchell, of Darlington, carried away the first prize. A very close competition in shearling ewes was decided in favour of Mr. J. Miller, who took precedence of Mr. Snell. The merits of the animals were, however, very evenly balanced, and good judges might have reversed the decision. The last section in this class also caused the Judges great perplexity. After a long consultation, Messrs. Stone, Snell and Russell divided the honours in the order named.

The next class on the prize list was also remarkably good, in which Richard Lean took the first prize for aged rams over an imported animal just received from Battersby, Lincolnshire, by Mr. Snell. Both were magnificent types of the Leicester breed. In shearling rams, Mr. Snell was first, and Mr. Adam Oliver, of Downie, second. The ram lambs were a beautiful lot; T. Teasdale, J. Snell, and James Russell taking the premiums. Among the aged ewes, a recent importation by Mr. Snell, from the flocks of Messrs. Walcott and Campbell, took the first prize; but in shearling ewes, this generally successful exhibitor gave place to Mr. W. H. Wallbridge, who distanced all competitors with a fine ewe just imported from Great Britain. The wool, like that of other first-class English-bred Leicesters, was remarkably fine, but the animal was not in show trim. In England this ewe had taken a first prize at the Yorkshire Show, where she had beaten a first prize winner at the Royal Society's Show. Mr. C. Walker, of London, exhibited the best ewe lambs of this breed; but the whole class was good, if not altogether first-class. Among the meritorious lots was a pen of six rams, just imported by Thomas Douglas, of Lobo, which arrived too late for competition.

The falling off in our Leicesters as compared with former shows is partly to be attributed to the want of fresh importations of pure blood for the last two or three years, and partly to the injudicious intermixing of Cotswold and Lincoln blood into many of our Leicester flocks, with the object of increasing size, but at the exponse of symmetry and early maturity, which are the highest characteristics of the Leicestor as a breed. There is much more need of pure blood Leicesters to cross on our common stock, or even the Cotswolds, than ever there was, now that good mutton readily commands so high a price, and early lambs are at a premium.

The Southdown class was fairly represented, and, as usual, Mr. Stone secured the lion's share of the honours. The most beautiful specimens of this breed on the ground, and, perhaps, on the continent, were two ewes that could not easily be matched for neatness and symmetry of form, or closeness and fineness of wool. Among the extra entries were four Lincoln ewes, exhibited by W. H. Wallbridge, of Belleville, who had just imported them from Great Britain. One of these had gained the very highest honours at home, having won a first prize at the Royal Society's show, and also at the great Lincolnshire show, held at Sleaford, besides a similar distinction at the Yorkshire show in Wakefield. They were very large sheep, and no one would suppose they were only shearlings. A ram of the same breed, imported along with them, had died. The judges awarded two prizes to the best of the lot.

There was a larger display than usual of Merinos, with several good specimens of the breed. J. & W. Smith, of Burford; R. D. Foley, of Darlington; A. Young, of Barton; and J. W. Johnson, of Grantham, were the principal exhibitors.

There was a good lot of fat sheep. The chief interest of the show in this class was centred in the Prince of Wales' prize, which this year was offered for the best lot of Leicesters, comprising one ram (one shear and over,) one ram lamb, three aged ewes, three shearling ewes, and three ewe lambs. There were six entries for this prize, but only three exhibitors, Mr. Snell, Mr. C. Walker, and Mr. James Russell, actually competed. The three lots, as they stood in row before the judges, presented a beautiful appearance and elicited general admiration. The decision was unanimously given in favour of Mr. Snell.

SWINE.

Under favourable circumstances there is little doubt but that the show of pigs this year would have been superior in numbers, as well as quality, to that of preceding exhibitions, but the miserable weather and the wretched condition of the pens has deterred many of the best and most enterprising breeders from sending their pigs to the grounds. Consequently, though in most of the classes the number of entries exceeds that of last year, a very large proportion of the pens are empty, and the actual show is numerically small. The only class in which the entries show a falling off is in that for large breeds, and this is neither a matter of surprise nor of regret, for though undoubtedly the larger varieties have their use, especially for purposes of crossing, and should not therefore be altogether neglected, yet for general utility, of early maturity, thrift and economy in feeding and delicacy of flesh there can be no question but that the smaller breeds are the most desirable. They are more easily managed, command a readier sale in the market, and will at a very early age attain weights the most convenient for the general consumer, giving the farmer a quicker return and a larger increase in proportion to the amount of food than the mammoths of the family. That this opinion is prevalent would appear from the very few representatives of the large breeds to be met with at the present exhibition, while in all the smaller varieties, though from causes already explained the show is small, the entries are increased.

In the class of improved Berkshires there is the largest competition, and many animals of very great merit were on the ground. Most noticeable among these were two splendid imported boars, one the property of Mr. George Roach, of Hamilton, the other of Mr. John Snell, of Edmonton. The first of them is 13 months old, squarely built, with sufficient length, a good head and fine skin, and altogether an excellent type for the breeder. Mr. Snell's importation is a little younger, and perhaps of rather larger frame. Both are extremely valuable acquisitions to the country. Among the sows in the same class are three importations that arrest the admiration of every visitor. They are the property of Mr. Miller, of Pickering, and constituted a prize pen at the late Oxford Show of the Royal Society of England. They are nine months old, evidently of the same litter, though one of them, exhibited by herself in another section, seems to carry the palm for all the best qualities of this favourite variety. It certainly would not be easy to find a better model of porcine excellence. Apparently, they are as gentle and almost domestic in disposition as they are symmetrical in form.

Mr. George Roach exhibits some beautiful animals in the same section, though we understand that he withheld some of his best stock on account of the condition of the pens. Other exhibitors, whose names have on former occasions been found on the prize list, have again contributed to this very meritorious class.

Another breed which is unusually well represented is the Essex, of which there are purer specimens than we ever remember to have seen at any Provincial Exhibition. Here again Mr. Roach is pre-eminent; and his imported specimens as well as the progeny of former importations, are admirably adapted to display the points of this choice breed, and to render it a favourite on this side of the Atlantic. Amongst the aged boars Mr. Roach exhibits the sire of some of his best stock, a noble animal two years and eight months old, imported from England in 1868. He also shows a number of younger ones that bid fair to rival their parent in excellence. Among the females of this breed Mr. Roach shows a ten months old sow, that is without exception the prettiest animal of the kind that we have seen. As in all good pigs the head is remarkably small, the snout short, the legs short and fine, the body squarely and compactly built, with the back broad so as to give it the character known as "table-back," making altogether a perfect study for the breeder. A number of younger sows of the same breed, shown by this enterprising exhibitor, give promise of rare excellence. They were all in prime condition and beautifully clean. Mr. McCrae, of Guelph, is also a prominent exhibitor of this variety and shows good specimens.

The Suffolks are another good class, containing some very choice animals. Here also Mr. Roach has the lion's share of enterprise and honour. He shows largely in every section, some of the animals being importations of 1868, or the present year. Among such a number of first-class animals it is not easy to select the choicest; but a 10-months boar and a 10-months sow took our fancy as much as any of the lot. Messrs. Featherstone, of Toronto Township, and Main, of Trafalgar, are also meritorious exhibitors in this class.

Of other small breeds, or rather mixed varieties and crosses of no particular breed, there is a miscellaneous collection, with a few animals of merit among them. Altogether the show in this class of stock, notwithstanding the serious drawbacks of the wretched accommodation, gives evidence of marked improvement, which is, no doubt, chiefly due to the enterprise of those breeders who have imported good blood from Great Britain.

POULTRY.

In contrast to other miserable quarters, the Poultry shed, an entirely new structure erected for the purpose, has been very well constructed, and those who remember the pools and mud through which they had to wade on the occasion of the last Provincial exhibition in Toronto, in order to gain a sight of the bedraggled birds, in coops too much exposed to the weather, cannot fail to be struck with the greatly improved accommodations provided this year. This consists of a spacious shed, 200 feet long by 24 feet wide, the sides being composed of open slats, so as to allow abundant ventilation, while a tight roof keeps all perfectly dry. The centre is occupied by two double tiers, one above another, of nest and commodious coops. A strong railing extends all round to prevent visitors crowding too closely, and there is ample space outside this railed enclosure for a considerable crowd to walk without inconvenience. The front of each coop is a separate wooden frame with upright wires. The whole of this front is lifted out to admit or remove the birds, and is kept in place by a button. This may be found inconvenient, and it strikes us that the plan adopted by the Poultry Association is preferable—namely, removing one or two of the wires, or providing a very simple door, for which one of the upright wires serves as a hinge. We think the two tiers of coops better than three, as none of the birds are raised to a height where they cannot readily be seen. In many respects this poultry shed is a model worthy of imitation, and is decidedly the best that has yet been erected at any agricultural exhibition in Canada. Very few birds indeed were in their places on the first two days, and not more than half the coops were filled at any time.

Although the number of entries in the poultry class was considerable, the show itself was by no means a large one, and as the accommodation provided was ample for an exhibition of very large proportions, the effect of empty coops, with birds only here and there, detracted from the success of this department. The fault of such a result lies entirely with those who made entries but did not send their specimens—an injustice which we have frequently noticed and condemned. All the birds could easily have been shown on one side of the row of coops, and would have looked better thus collected together. But the manager had of course no alternative than to leave the coops for expected occupants, according to his catalogue.

We miss in the present exhibition some prominent exhibitors. Mr. Bogue is the only representative of London. He has some of the best birds in the exhibition. The first and second prize pairs of White Dorkings are his, and very beautiful birds they are. In coloured Dorkings, Mr. Van Ingen, of Woodstock, takes the first prize with a splendid pair. The Golden Polands of Mr. Bogue are also fine specimens, and Mr. McGrath, of Toronto, shows a good pair of the same variety.

Game fowl are not in their usual force; Cochins are also very far behind the splendid display to which we have recently become accustomed. Mr. McLean Howard and Mr. H. M. Thomas show two good specimens of the Partridge variety. Brahma Pootras are somewhat better represented, but not in their usual numbers. H. M. Thomas shows the best birds of this breed, both of the light and dark varieties. The latter are the progeny of the fine birds imported two years ago by Mrs. Varley, and that attracted so much notice at the second exhibition of the Ontario Poultry Association. In Golden Hamburgs, Mr. McLean Howard showed, as usual, beautiful specimens of this most graceful variety. Mr. Van Ingen had two pairs of Houdans. In Bantams, the most remarkable pen was a pair of very small and pretty game, shown by J. Main, of Trafalgar. The show of geese was fine, and the number of competitors respectable. There were also some good pens of ducks. The Aylesburys of Mr. Bogue and Mr. J. Forsyth, were particularly worthy of notice. Among the young birds the last-named exhibitor had some good specimens, which were the produce of imported eggs. Mr. Howard also showed some dark Brahma chickens of similar origin. There was only a small show of pigeons. Mr. McGrath showed a good lot of carriers, pouters and tumblers; but there were very few other entries.

On the whole, without detracting at all from the merits of many of the specimens, we must say the exhibition of poultry is a decided falling off from those of recent years; and it is evident that there is room and need for the Poultry Association to bestir itself to keep up or revive an interest in this branch of stock raising.

IMPLEMENTS.

No branch of the exhibition suffered more from the bad weather than the implements department. The continued rain of Monday made exhibitors afraid to bring their machines on the ground, and in many cases we failed to find the owner or attendant of such as were on view. Many of the implements had not even a ticket attached, and we frequently returned in the vain hope of finding some guide in our perplexity. From such causes as these, the report of this interesting department will be briefer and less finished than we could have wished. The first articles, and probably those of most importance, are the steam engines. They are represented by the rotary engine and portable boiler manufactured by Messrs. Hamilton & Son; also, that of Messrs. Waterous & Co., of Brantford, the latter in full operation, driving a portable steam sawmill, with lath mill and double edger, so arranged as to edge a board on both sides at once, and, at the same time, to be quite under control of the operator. The vast number of these saw-mills in use seem to point them out as having met with public approbation. This being the only moving piece of machinery driven by steam in actual work, is a source of general attraction, and it is much to be regretted that some arrangement by which the various other machines could be worked has not been carried out—the attractions of the more ordinary machines in actual operation being far in excess of the more elaborate whilst at rest. This firm have been before the public for many years, and all accounts coincide in awarding to them the credit of having first constructed the clipper mill now exhibited. We know that a mill of the same construction as this one was exhibited formerly in Toronto, and at once sold for exportation—we believe to Africa. To guard against the difficulty of casual breakage in a foreign country, some portions were made in duplicate, but we have been led to believe they were never required. One great peculiarity of the engine is the adaptation of the circular slide valve, and when engines on a somewhat larger scale than the one exhibited are used for driving flouring mills, a most simple and effective cut-off is attached, whereby an immense saving of steam is effected. The great advantage of the portable clipper mill consists in its being so readily adapted to any locality, and it can be erected in a few hours without any extensive building, as is usually required. Driven by the same engine now shown is their far-famed shingle machine, which is capable of turning out a large quantity of work each day. Another addition the enterprising firm have lately made to their merchant saw-mills is their pony saw-mill, by which an immense quantity of narrow boards for fencing, siding or flooring can be cut, and with the minimum amount of labour, as the machine in question is entirely automatic and self-setting. We lately visited a large merchant mill, built by Messrs. Waterous & Co., in which this new addition was working, and from the satisfaction expressed by the owner at the work performed, it would seem to be a great success.

Dickey, Neill & Co., of Toronto, exhibit a complete iron saw-mill "rig," the saw frame being of iron, instead of wood, as ordinarily used. They seem to have combined all the American improvements and some of Canadian invention. Amongst others we notice the "log mover," being constructed to be effected by friction, instead of the old ratchet wheel; also a new feed-motion, supposed to be more efficient than the old plan. A great saving of heavy lifts is effected by the "log turner," a machine so arranged that when a slab is taken off the log and it becomes advisable to roll the log over, this machine accomplishes in a moment, by the power of the engine, the work of two men, that would occupy double or treble the time. A double edging machine, is so arranged as to have one saw movable on the shaft, and capable of being moved out or in, in a moment, thus cutting and edging both edges of a rough board at once. They show one of Earl's steam pumps, direct action; and one of Cole's water wheels, of the turbine shape, which is claimed to be a great improvement on those now in use; various castings from green sand, and hand forgings.

PLOUGHS.

Ploughs were well represented, and some very handsome ones were exhibited. Those of John Gray and Co., of Glasgow, Scotland, created much speculation on their merit as two-furrowed ploughs. The iron ploughs were in considerable number, and of excellent manufacture and finish; some of them had additional attachments said to be of great service. The wooden ploughs were also well represented, and quite a number were on the ground. The subsoil ploughs were of almost all shapes, as adapted to loosen the hard under-stratum. Much diversity of opinion prevailed relative to these implements, and considerable ingenuity has been displayed in producing the result said to be arrived at. There are also some double share Trench ploughs, well manufactured articles; and double mould-board ploughs. There are several Gang ploughs, some turning three and some four furrows.

CULTIVATORS, HARROWS, ETC.

The two horse cultivators in iron are excellent articles, and well worthy the farmer's attention. There are many improvements lately made, some no doubt very important; one in particular is that of removing the share and substituting its support so as arranged as to form a strong and substantial grubber, where the land is too hard to allow of the ordinary share being used. There was, however, much praise due to all as most useful implements. Those cultivators manufactured from wood and iron combined seemed to be liked by farmers, but could hardly be as durable as all iron.

There were some horse hoes, for one and two horses, and small gang ploughs used as horse hoes, reversible in their action on the soil. These ploughs were considered very useful as cultivators between corn and potatoes, turnips, &c., &c.

The clod crusher shown we consider is liable to be broken when coming in contact with stony land; otherwise, no doubt, it is an efficient implement.

There were several pairs of iron harrows, and one with wooden "bulls" and steel teeth, said to be a most useful tool and of very light draught. The wooden harrows did not excite much attention.

The wooden rollers were various and fanciful in their construction, adapted to all kinds of uneven surface and rounding land, and so arranged as to turn very easily, many of them being in two or three portions, instead of being formed of one long roller as was the case formerly.

Of grain drills there were three, and all possessed advantages—some in excess of others when used in particular positions and under trying circumstances. There were two seed drills of the ordinary kind used. Those used for sowing plaster were well adapted for the purpose, and saved a great deal of the irregularity that of necessity exists in hand sowing.

MOWING MACHINES, ETC.

In mowing machines and reapers there was an immense show, all excellent in their way, and all claiming something peculiar as adapted for various kinds of work. Some reapers were splendid samples of automatic work, especially those with self rakers, which were so completely under the control of the driver that he could make a sheaf of any given size all day long. The labour-saving of these machines must be immense at the present high price of labour.

RAKES AND PITCH-FORKS.

In horse rakes there was a good show, and several varieties; those with steel spring teeth seemed to be the favourites generally, as less likely to get out of repair.

The horse pitch-fork, for unloading unbound grain and hay, and conveying it to any part of the barn on overhead railways, was very much visited—those who had for years used the old plan being strongly interested in the new, and those who had derived the benefit from the improvement universally approving of the implement.

THRESHING MACHINES.

We next come to the horse-power threshing machine and separator, and here there was a splendid show, with, as usual, many claimants for various improvements. That which seemed specially to please the public was a most excellent adaptation of the position of the separator to the horse-power, whereby the one can be used in any position relative to the other, not necessarily, as heretofore, confined to a right angle or parallel position. This improvement was due to Messrs. Medcalf, of Toronto, and we have no doubt will prove of immense utility and convenience.

OTHER IMPLEMENTS.

In potato diggers there were several shown, one in particular that claimed to possess the power of digging and cleaning the potatoes, and having them all picked up and in a box, and, moreover, thus effectually operating on three acres each day.

There were three stump extractors on the ground, two screws and one lever. All had their admirers, and if the size of the chains used is any guide, their strength at a pull must be immense.

In straw cutters the show was certainly most excellent; many kinds were heavy and strong—strong enough to cut not only the straw, but apparently also the fork used to handle it with. Some exhibitors claim that any small stick that by accident may get into it affords no impediment whatever, so far as breakage is concerned.

There are several smut machines, of excellent construction, and much was claimed for their performances.

The grain-cracker and corn and cob grinder was much approved of generally as among the most useful implements the farmer could possess.

The elaborate clover-cleaning machines are so far in advance of former exhibitions as scarcely to be recognized as an effect of the original conception.

There were several cider mills and presses, and visions of cider and excellent and palatable drinks were manifestly in the minds of the many spectators.

WAGGONS AND SLEIGHS.

The two-horse team waggons, with spring market waggons, were in great force, and numbers of excellent articles were on exhibition. One cart also, such as is used for light purposes, was shown.

In farm sleighs there was little shown, with one exception, which consisted of a combined sleigh, with wheels so arranged that if at any portion of a journey the snow should fail, nothing more was required than to bear down on a handle, and the wheels did the work, to be again raised in their turn if the sleighing was again good.

BRICK-MAKING MACHINES.

There were two brick-making machines on the ground, one in actual work, and it certainly turned out an excellent article with rapidity; the other was not tried at that time, and was only a hand machine, whereas the first named was driven by power and pressed every brick in its turn.

DITCHING MACHINE.

The draining or ditching machine was much thought of. Hitherto the digging of the trench for the tiles has been a great expense, but with this machine there seems to be no doubt that draining can be done wholesale and at small cost.

There was a large show of straw-cutters, which excited much attention, and were arranged for horse or hand power. One of this class of implements was so adjusted as to be used as a pea thrasher, and a conveyer or straw carrier attached formed a most complete addition to it. We understand it works exceedingly well. The single and double horse powers were well adapted for such uses, and combine an exceedingly cheap power with great economy of room.

The Eureka ship pump was much liked, and possessed the great advantage of being constructed so as readily to pump wheat or water from the hold of a wrecked vessel.

The root-steaming boiler, an arrangement for steaming feed for cattle, was constructed of cast iron with corrugated surface; supposed to combine more than ordinary advantages by this formation.

A self-unloading waggon box was shown, and certainly had every appearance of a most useful addition.

In drain tiles there was only one principal entry. This machine is said to make tiles of any size likely to be required, and at the same time capable of turning them out in large quantities. A large assortment of very superior quality was shown.

Messrs. Tuttle, Date & Rodden showed an excellent assortment of scythes, hoes, forks, and other tools, some with additional portions to those usually made, whereby it was believed more than ordinary strength was attained, combined with great neatness of appearance.

The Oshawa Works, as usual, exhibited a good assortment of hoes, forks, scythes, and other tools. This old manufacturing company still retain their character for good tools, as their assortment fully proves.

The fanning mill department was very active. Exhibitors under this head were testing their various mills, with all sorts of apparently impossible performances, such as mixing oats, peas, wheat, and grass and wood seeds together, and at one operation completing an entire separation, leaving the wheat or peas entirely free from all oats or weed seeds. The various smaller seeds were collected, and cleaned, and separated in heaps each by itself. These implements, certainly, have attained to great perfection in cleaning grain. One mill was so arranged with a conveyer for the cleaned grain that it delivered it completely finished in the bag.

Machines for cutting roots for stock were numerous and well represented, and were capable of cutting any shaped piece from simply slicing the turnip to cutting it into dice or pulping it into mash.

Churns were numerous and of all kinds; some were driven by dogs, and seemed to be much admired on that account. There was every motion conceivable given to the cream by the churn, from the ordinary old fashioned dasher to the tumbling bonet churn, which was caused to revolve over and over with great apparent ease to the operator.

The wooden force pumps were in full action, and it was claimed by the maker that he could throw a stream of ⅞ of an inch in diameter from 40 to 60 feet high with the power of two or three men. These pumps were therefore well adapted for farm fire-engines.

In washing machines there was but a miserable show. Whether the machines now on trial and those condemned for inefficiency throughout the country have caused a despairing lull in the manufacture we are unable to say, but certainly there are more condemned washing machines in the country than great successes in the manufacture.

The fruit pickers were of various kinds, and several sorts were shown. There can be no doubt that the introduction of some machine by which our fruit can be picked with less labour than by hand, and at the same time without injury, would be a most useful implement. We export largely to the old countries, and if the fruit is bruised it decays and is valueless.

The horse shoeing brake was a very strong and useful machine, and blacksmiths would do well to have one or more in a village, where accidents can be contended with or operations performed.

Welland Vale Tool Works show some excellent specimens of manufacture in forks, hoes, scythes, and various articles of like nature, some of which, the manure and hay forks in particular, have an excellent additional attachment at the juncture of the handle, whereby great additional strength and extreme neatness of manufacture is obtained.

The St. Catharines Saw Works, amongst a full assortment of saws for ordinary purposes, show a monster six foot eight inch circular saw—a creditable addition to our Canadian manufactures—also, what is claimed to be a champion combination cross and ripping hand saw, so arranged with deeply cut gullet as to greatly assist in the delivery of the saw-dust.

Goldie & McCulloch, of Galt, exhibit mill stones, planing machines, and barrel head turning machine, heading planer, with turbine water wheel; tenoning machine, sash and moulding machine, self acting shingle machine, with vertical saw; cloth press, cloth brusher, carding machine, with steam governor and water wheel governor; measuring and winding machine, used in cloth manufacturing, with indicator attached; wool picker, hard waste pickers, and must machine.

McKechnie & Bertram, Dundas Tool Works, produce a complete assortment of mechanical tools and wood working machinery. Also, tools of various kinds for working in iron—amongst which are four drilling machines, expanding die, and bolt cutter; a compound planer for planing straight and circular iron work; nine foot planer; 14 foot and gap lathe; and complete screw cutting lathe; car wheel borer, for Messrs. Hamilton, capable of boring 40 to 50 wheels per day. This machine weighs 8,000 lbs. Amongst the wood working machines is one for planing, moulding, and beading on both sides of the lumber to be operated on; one pony planer, and machines for sash and door work; shaping machine for all kinds of irregularly formed work; power morticing machine, one specially for car work, and also for ordinary use.

Morrison & Co. show an assortment of steam gauges and brass work; engineer's clock for timing an engine's work and speed; and steam indicator, and test guage for boilers, with an assortment of cabinet brass work.

Sweet, Barns & Co., of Syracuse, N. Y., exhibit mowing machine knives, with sickle bars and sections.

Charles Levy & Co. exhibit a planing and moulding machine, constructed on a new plan, dispensing with numbers of belts, and using worm feeding wheels; also a powerful water wheel, manufactured by Barber & Harris, of Meaford.

ARCHITECTURAL.

John Dennis shows a barn of new construction, the object being to dispense with the ordinary heavy timber used, and to substitute that of a very much lighter description. The principal feature of its construction seems to be that of first building a small barn with exceedingly light timber, and using all the well known strength derived from additional long braces. When this centre erection is completed similar additions are made all round the first, and attached to it there is also a horse power of the old cheap "finger and thumb" motion, said to be strong enough for eight horse power, which drives a threshing and unloading machine for hay and loose grain when unbound. The grain is delivered on a transverse railway arranged in the roof, which conveys its load to any part as required, and on its arrival at any one given point automatically delivers its load and returns for another. The new principle here developed and used, consists of round 2 in. holes being bored, and square 2 inch hardwood pins driven into the piece that would ordinarily be morticed; the other end of the square pins is again inserted into the piece that ordinarily would be tenoned and through each end of this square pin, where the two surfaces of the part of the timber to be joined are brought together, smaller pins of about ¼ of an inch in diameter are driven across, with a little "draw bore," as it is called, which effectually brings all parts into close contact. It will be seen that by this means small hardwood tenons are virtually substituted for the ordinary pin, and can be therefore made much lighter.

GRAIN.

In spite of adverse harvest weather and the various troubles and difficulties that croakers are apt to bemoan so woefully, the appearance of the grain at the present exhibition affords abundant evidence that, in sections of the country widely spread, the quality of the crop has been better than usual. The samples of all the cereals, but especially of wheat and oats, are finer than we have seen them for several years; and in some instances there was an evenness of excellence that rendered it a matter of no small difficulty for the Judges to award the premiums. For the Canada Company's prize of $100 there were more than the usual number of competitors, but the honour was awarded to James McNair, of Vaughan, for a remarkably good sample of Deihl wheat, heavy, plump, and even. The second prize of $50, given by the Association, was gained by John Cullis, of Hamilton Township, for 25 bushels of Soules wheat, and the third to Joseph Freeman, of Flamboro, for the same quantity of the Deihl variety. The first prize for the best two bushels of white winter wheat was to Joseph Redmond, of Otonabee, and the second to W. Taylor, of Pickering. The last-named exhibitor also secured the first prize for red winter wheat, and W. Grant, of Puslinch, obtained the second.

The samples of Fife wheat were particularly good, not only in the section devoted specially to that variety, but in the mixed class, the Fife wheat took all the premiums. The prizes did not go to any particular district, but were divided over the Province in every direction, showing that no section has been specially favoured in the season.

There were some excellent samples of barley, many of which, in spite of the pervading wet weather, were not only plump and well filled, but bright in colour. Of the two-rowed there were six entries, Thomas Gibson, of Markham, taking the first prize. The competition in the six-rowed variety was much greater, and Walter Riddel, of Cobourg, won the laurels.

There was but a small show of rye.

In oats there were a large number of entries, and the samples were unusually fine. Indeed, there was scarcely a bag of inferior ones among them. The judges had much difficulty in making the award—in white oats especially, which were remarkably fine. There were also several bags of heavy and well-filled black oats, the best sample of which was undoubtedly shown by W. Riddel, and gained for him another first prize.

There was less competition in peas, though the samples were good.

Indian corn was fairly represented, the palm going to Niagara in the person of H. J. Brown.

Five bales of hops were exhibited, mostly well cured, and in prime condition.

There was besides a good display of various seeds, though the number of competitors in this class was, as usual, small.

FIELD ROOTS.

The favourable accounts received from all parts of the country respecting the fine condition of the root crops would lead us to expect a good exhibition in this department, and the visitors to the building in which the field products, along with the horticultural collection and produce of the dairy, were effectively displayed, would meet with no disappointment in regard to this part of the show. Whatever the season, we generally see some immense specimens of mangold and ruta bagas; but there is this year a uniformity of excellence, and a larger proportion than usual of fine samples. Some of the monster mangolds were quite curiosities, but such giants are not the most desirable for the farmer to aim after, and medium sized roots are on many accounts the most profitable. There was a good display of the sugar beet, a crop that will, no doubt, be more extensively grown now that the attention of the cultivator has been directed to the feasibility of successfully raising the root and manufacturing the sugar in this country. Of carrots, especially the white Belgian variety, there was an excellent show. In the display of potatoes we did not notice anything very remarkable. Some of the exhibitors would have improved the appearance of their collections if they had taken the trouble to remove the dirt from the tubers. At an exhibition one expects to see at least clean samples. The squashes for cattle and field pumpkins, as usual, elicited exclamations of wonder from the passing spectator.

HORTICULTURAL DEPARTMENT.

FRUIT.

The display in the general list is one of unusual beauty and excellence. The change made in the prize list, whereby those varieties most usually grown throughout the Province were brought in direct competition with each other, had the effect of calling out a most superb display, and made the contest for excellence unusually spirited.

The collections of thirty varieties of apples which were shown were of superior merit, and such was their excellence that the judges, after awarding the three prizes, designated two others of the collections as worthy of high commendation. Also in the collections of ten varieties of apple the same fine quality was manifest; and a fourth one of them was distinguished by a commendation from the judges.

In the collections of four varieties of dessert and four varieties of cooking apples, the competition was very high, and it was only after long and critical examination that the awards of first prize were made to Mr. Gage J. Miller, of Virgil, who displayed much judgment in selecting for the collections varieties of high quality as well as fine samples of fruit.

The samples of Snow Apples placed upon the tables were indeed of surpassing excellence, and long and sharp was the scrutiny to which they were subjected by the judges. This variety usually succeeds best in the northern parts of the apple region, and we see that both the prizes for this variety were taken by gentlemen residing in the cooler sections—the first by Mr. Sam'l. Wood, of Islington, and the second by Mr. John Shuttleworth, of Weston.

The Fall Pippin is still a great favourite, as could be seen by the number of samples exhibited, although in some places it is becoming very difficult to grow it free from spots. It is an excellent apple, and Mr. F. Morrison, of Hamilton, may well be congratulated on being able to grow it in such high perfection as to carry off the first prize.

As an autumn apple of great beauty and excellence, valuable both as a dessert and cooking fruit, and selling in the market for the highest prices, the Gravenstein stands in the foremost rank. The display of this variety was not large, but the specimens shown were of great excellence, and came, so far as the prizes indicate, in best quality from the old Niagara District.

The Ribston Pippin is a very valuable variety, admirably adapted to our climate, growing here in the highest perfection, and commanding, when shipped to the markets of Great Britain, the very highest prices. We are sure the admirers of this fruit at home would have paused in wondering delight over the truly splendid display made in this variety. Though the first prize was given to Mr. Gage J. Miller, of Virgil, who has the advantage of residing in what is termed the fruit garden of Canada, yet the second prize was won by Mr. G. Tattle, of Yorkville, with a sample scarcely inferior, thus showing the adaptability of this fine variety to most parts of the country.

The Spitzenberg, Baldwin, Rhode Island Greening, and Roxborough Russets—four varieties now well known and universally esteemed, were displayed in great force, and of the very finest quality.

The best samples of Golden Russets of Western New York were from the Niagara District, where it has been considerably planted by growers for market, and is gaining a decided reputation as a profitable market apple.

The Swayzie Pomme Grise, one of our most delicious winter dessert apples, has not yet found its way into very general cultivation. The best samples were from Niagara, where it has been long known and highly esteemed. We cannot here refrain from a word of commendation upon the decision of the judges, who evidently were not influenced by size merely, but awarded the prizes to the best developed specimens of the true and normal type.

The Northern Spy is gradually working its way into the esteem of the Canadian fruit growers, if we may judge from the number of plates of this variety and the excellence of the samples. The tree is tardy in coming into bearing, and will not yield its fruit in perfection to the negligent cultivator, but the tree is hardy, and from its habit of putting forth its blossoms quite late, the fruit often escapes a late spring frost that nips its more adventurous neighbours, while in quality for table or kitchen use, and in beauty of appearance, it has few equals.

There was quite a number of seedling apples offered in competition, the most of which, in the opinion of the judges, exhibited no distinguishing quality of excellence. But there were two plates of these which were notable exceptions, and to which the prizes were awarded, the first exhibited by Mr. John Shuttleworth, of Weston, and the second by Mr. W. Forfar, of Agincourt.

Mr. Shuttleworth's seedling bore a very marked resemblance to the St. Lawrence, but when tested with that variety seemed to be a later sort and of a more sprightly flavour. This seedling should be sent to the fruit committee of the Fruit Grower's Association, with a full account of its origin, and the character of the tree, in competition for their premium of fifty dollars.

The collections of twenty varieties of pears and of ten varieties embraced some of our very best and most valuable sorts, but some of those most usually seen at our exhibitions were doubtless ripe and gone some time ago. Yet we never saw finer samples, more even and perfect, than those to which the first prizes were given, and they certainly reflect great credit upon the skill and taste of the worthy President of the Fruit Growers' Association. Were others of our clergy to emulate his example, and seek for rest and refreshment to their wearied mental energies and social sensibilities in the soothing and healthful culture of the fruit or flower garden, they would be much the gainers in bodily health, and their people in better sermons.

Bartletts were too far gone—only two plates, and these fast going to decay, put in an appearance.

White Doyenne has spotted and marked so badly in the United States that it is not much planted now by our neighbours over the border, but the specimens shown here manifest no symptoms of trouble from this cause, and were most noble specimens of this much-valued sort.

No one of our pears seems to be so widely adapted to the various parts of the Province as the Flemish Beauty. The tree is very hardy—one of the most hardy, and the fruit is both of large size and fine quality. The plates shown are very fine indeed, and fully sustain the high reputation of this pear for beauty and quality.

The Louise Bonne de Jersey is a variety so productive, and of such pleasing appearance, that it has become a general favourite, notwithstanding that it is not of the very highest quality.

On the other hand the Belle Lucrative is a fruit of the highest quality, but has been so little cultivated that only two plates were shown for this variety, and of these only the one shown by Mr. John Sharman, of Oakville, was the Belle Lucrative.

If greatness be a quality of goodness, then surely the Duchesse d'Angouleme on exhibition are of the highest degree of goodness. We heard one of the most experienced of the judges in this department remark that he thought he had never seen such monstrous pears. Mr. Robert Stibbard, of Eglinton, who bore off the palm, should tell his less fortunate brothers in fruit culture how he grows such monsters.

Were the tree of the Beurre Bosc only a little more hardy, we are sure it would soon become a favourite sort. In symmetry of form, fine cinnamon russet colour, and rich, juicy, spicy flesh, there is nothing to be desired. There are not many plates exhibited, and the two prizes are taken by Niagara, where probably it finds its most congenial climate.

Beurre Clairgeau will doubtless be found to thrive and fruit well over a larger portion of the country; for we find that Mr. George Murray, of York Township, carries off one of the prizes. It is comparatively a new sort, but one which will probably find favour on account of its fine size and appearance.

It is too soon to get many specimens of Clapp's Favourite, for which a prize was offered, but no samples appeared on exhibition. This new variety has been very highly commended, and is well worthy of a trial at the hands of lovers of good fruit, and it has been well done to draw attention to it by the offer of a premium.

Winter Nelis is one of our very best winter sorts, and the samples shown are of the highest excellence. It succeeds well over a large part of the country, which might be inferred from the fact that the first prize was taken by Mr. W. A. Smith, of Brantford, and the second by Mr. J. Young, of Hamilton.

The mysterious pear blight seems to be particularly fatal to the *Glout Morceau*, but the specimens here shown demonstrate that the trees do sometimes live and bear most noble samples of this fine winter pear.

The Vicar of Winkfield is another of those very productive kinds which have been a good deal disseminated, and if ever well developed specimens could be a guarantee of fine flavour, these should secure that very desirable quality; but the sort is one of great fickleness, bringing to mind Virgil's description of woman, *"varium et mutabile semper femina."*

In any other variety of fall pear the competition was very spirited; but Mr. W. R. Warren, of Niagara, distanced all competitors with a plate of the very finest Seckels—a variety that has no peer for quality; and Mr. R. Burnet, of Hamilton, justly won the second with fine samples of Beurre d'Anjou—a variety that promises to be one of our most valuable late sorts.

It is too late in the season to expect a good display of plums; hence, although the crop in many places has been very fine this season, the number exhibited is quite limited. One exhibitor, with commendable zeal, has endeavoured to preserve a number of varieties beyond the period of ripening for the purpose of exhibiting them, but the acid preparation in which they were kept so destroyed the flavour that the judges could form no opinion of their quality beyond their size.

What is true of the plums is also to be said of the peaches—the time of the Exhibition is too late for any display of good peaches. A few are shown, but they are, like all late peaches, lacking in richness, sweetness, and delicacy of flavour.

The display of grapes grown in open air is large, and gives evidence of increasing attention to the cultivation of this fruit. The number of varieties is constantly increasing, and quite a number have been found to be every way reliable in our climate. There were some thirty varieties shewn by Mr. James Taylor, of St. Catharines, who has paid no little attention to the cultivation of the grape, and exhibits samples of great size and beauty, which received the first prize.

The Concord variety is shewn in considerable quantity, and is evidently succeeding over a large part of the country. The vine is hardy, and a very abundant bearer.

There were a good many plates of the Delawares shown also, one of the sweetest grapes grown successfully in the open air. The prize samples came from Niagara, and were most beautifully ripened.

It is too late to expect many samples of the Adirondac, which is an early ripening sort; but the prize sample, shown by Mr. Thos. Brownlie, of Scarboro', proves that it can be well grown on the north shore of Lake Ontario.

The Diana has now been quite extensively disseminated, and it is gratifying to find that so good a grape is grown, and ripened in such perfection, in Toronto and York Township, that the grapes from this locality carried off both prizes. It is said to be an excellent variety for the manufacture of wine, and that the prize wines was made from this grape.

The Creveling is a very early ripening sort. The prize samples came from St. Catharines and Scarboro, showing that it thrives well in quite different localities. The fruit is of fine quality, but the vines do not always set well, thus often giving the bunches a very loose and straggling appearance.

The Hartford Prolific is also early, and evidently grows well in Scarboro and at Goderich. It is hardly equal in quality to either Creveling or Adirondac.

A large number of the Rogers Hybride were shown. These are very large in berry, not uniform in bunch, most of them quite hardy and ripening in good season. The best bunches of Rogers, number 19, came from York Township, which shows that some will thrive over a large part of the Province.

The Catawba will not usually ripen well in Ontario, but Mr. Durand, of Niagara, exhibited three clusters of this variety that fully equalled any, even the best we ever saw, from the famed islands of Lake Erie.

The Iona is comparatively new, and many fears are entertained lest it should not be found to thrive in most parts of the Province, but Mr. J. B. Hay, of Waterdown, exhibited some very well-ripened clusters.

There are but few plates of grapes grown under glass in the general list, but the few that are shown are of fine quality. It is to be hoped that our residents in those parts of the land where the finer out-of-door grapes cannot be thoroughly ripened will avail themselves of the hints given in the *Canada Farmer*, upon the cheap construction of glass houses, and enjoy the comfort of delicious grapes grown under glass.

There is a considerable display of water melons, and some green and scarlet flesh melons, but in October they cannot be of a very fine quality.

There were a few entries of domestic wines, but it was evident that very few yet understand the art of making wine from grapes. The dry wines on exhibition were almost sweet, and most of the sweet wine would pass for a cordial. Yet it is only by continued attempts that success can be achieved, and there is no reason why wines of excellent quality should not be made here. The prize offered for the best essay on wine making is a judicious action on the part of the Agricultural Association, and if continued for a few years will furnish our people with the much needed information on this subject.

In the professional list there is a very fine display of fruit of every sort, in which Mr. Leslie's, of Toronto, nurseries are most prominent, ably followed up by by J. A. Bruce & Co., of Hamilton; James Dougall, of Windsor; D. W. Beadle, of St. Catharines, J. & J. Gray, of Toronto; Chas. Arnold, of Paris; and C. E. Woolverton, of Grimsby. The country owes much to the enterprise and labours of these gentlemen in the distribution throughout the Province of such excellent and truly valuable and profitable fruits.

The collection of fruits shown by the Hamilton Horticultural Society, to which was awarded the first prize, is a truly magnificent display of all kinds of fruit, contested keenly by the Galloway Club of Lincoln County.

The display of garden vegetables of all kinds was large, and gives evidence of increasing interest and attention in this department of horticulture. A liberal variety of garden vegetables should be enjoyed by every well-to-do farmer, yet we venture to say there are very many who give no attention to the cultivation of the garden.

The celery exhibited is good, the onions as handsome as any could wish, and tomatoes and capsicums in greatest profusion. We noticed that in winter squashes the variety known as the Hubbard carried off first, second, and third prizes; and the first prize for the best six varieties of patatoes for table use was given to Garnet Chili, Early Goderich, Ash-leaved Kidney, Breeze's King of the Earlies, Breeze's Prolific, and Early Rose.

There was nothing of much interest to be fonnd in the floral department, unless we except some really beautiful dahlias, in which Messrs. Leslie & Sons take the lead. Of these we name Lady Hubert, Queen Mab Bird of Passage, Peri, Stafford's Gem, and Triumph, as being very fine indeed. It can be no matter of disappointment that the display of flowers should be limited; the only wonder is that the frosts had not cut them down out of doors, so that the only resource would have been in greenhouse plants.

In closing this hurried sketch of the horticultural department of the exhibition, we can truly congratulate its friends on the continued evidence of progress, and an ever increasing taste among the people for, and skil in the cultivation of these finer products, for which so large a part of the Province is most admirably adapted.

DAIRY PRODUCTS.

The new stimulus that has been given to dairy husbandry during the last few years by the introduction of the factory system, has called forth a large amount of enterprise and skill, and in various sections of the country, east and west, new establishments, are springing up, while the increased competition and the refined requirements of the English markets are stimulating the pioneers in this manufacture to bring up the quality of their production to the highest possible pitch of perfection. Judging by the factory products shown at the exhibition, we expect to learn that the quality of Canadian cheese during the past season has been of superior excellence. There was considerable competition; and the districts represented were widely spread, but chiefly in the counties of Oxford, Hastings, Northumberland, York, Halton, Haldimand, Welland, Perth, Huron and Orey. The general excellence of the samples was so good that the judges were very slow in making their election, and we believe did not come to a decision till after an adjournment. It is quite certain that some of the cheeses not honoured with a premium card were of a quality that reflected great credit on the maker. Our own judgment would even have given a first prize to one of this undistinguished lot. The prize cheeses, were, however, without doubt, excellent samples. A. McBean, of Galt, Platt Kiernan, of Haldimand, and T. Ballantyne, of Sebringville, carried off the honours in the order of their names.

The private dairy cheeses, though not so numerous, made a creditable display, and were mostly of prime quality. A. Shaw, Nissouri, J. Patton, Scarboro', J. Franks, Dorchester, and A. Glendinning, Scarboro', were the successful exhibitors. Mr. Shaw also took a first prize for Stilton cheese; and Mr. Parsons, of Guelph, took only a second, though it would be difficult to find a better article than the cheese of his make.

The competition in butter, and the quality of much that was exhibited, gave evidence, which ought not to be confined to these rare occasions, that good butter can be made in Canada. Six prizes were awarded in each section, and the judges felt constrained to distinguish others as worthy of a premium. Let the unfortunate consumers who have suffered from dyspepsia and nausea, or deprived themselves of the luxury of butter because a good article was not to be had, consult the prize list and take courage.

APIARY DEPARTMENT.

Bee-hives, bees, and honey, were well represented, showing clearly a great interest in bee culture. There were six competitors in bee-hives. Most of the hives, though constructed on the movable comb principle, are somewhat small. B. Losee, of Cobourg, showed a hive with a wire bottom, underneath which is a drawer for catching the moth, dirt, &c. If this is not kept quite clean it will prove detrimental to the hive, and become a moth nest instead of a moth trap. The frames of this hive come in contact with each other down the entire sides, and it must be difficult to operate without killing bees.

Mr. P. Nicolls, of Lindsay, showed what he calls the Economic Hive. The frames are hung with metal bearings, so constructed as to hold the frames at equal distances apart It has an internal arrangement, which, by means of a crank, is forced against the panes to hold them in place, or by withdrawing the frames may be moved apart. This in many cases would be difficult to do.

D. A. Jones, Tecumseth, exhibited Jones' Perfection Hive. The hive proper is made of tin, which is encased with wood. The frames are very deep, and for that reason difficult to handle when filled with honey.

J. Munson, of Collingwood, also showed the Dominion Beehive. It is much upon the same principle as the Langstroth hive, as improved by H. Alley, of Wintram, Mass. It is constructed with side and top drawers for surplus honey. Like the Langstroth it is very heavy and cumbersome, and like the Economic hive it is expensive.

J. H. Thomas was also on hand as usual with his hive, which is too well-known to require description. He also exhibited two fine stocks of Italian bees, and an Italian queen in an observing hive.

A. C. Attwood, of Vanneck, Middlesex Co., also exhibited J. H. Thomas's hive, as he claims, improved by himself. Mr. Attwood also exhibited a movable bee palace for exhibition purposes, which is very tastefully constructed, and in every way convenient.

It is gratifying to see a growing interest in this branch of rural economy. Nearly every year new hives are brought out claiming attention, but in most cases they are too complicated and too expensive.

NATURAL HISTORY AT THE PROVINCIAL EXHIBITION.

Were the progress of natural science in Canada to be measured by the display in this department at the annual exhibition, sorry indeed would be the estimate formed of the labours of our naturalists and the capabilities of our country. Those, however, who possess collections in the various classes of zoology and botany, know better than to expose their precious treasures to the dust and dirt of the exhibition, and the manifold hazards of carriage to and fro, when the only compensation they can look for is the few paltry prizes offered by the Association. If the Association desires to afford to its visitors a representation of the fauna and flora of the country, let it offer more suitable prizes and ask for collections of a more special character; and let it also set apart a certain portion of its space for the fitting arrangement and display of the specimens. In these days, when some men devote the labours of their lives to the working up of a few families in a single order of the animal or vegetable kingdom, it is absurd to ask for such general collections as would require a whole museum to illustrate.

Last year, at London, there was a very creditable display in the department of Zoology, thanks to the local branch of the Entomological Society; but this year there is not a single insect on exhibition, not a single mammal, not a reptile, not a shell, not a fossil, not a mineral. The only entries are—in Mithology—a fine case of stuffed birds, chiefly water-fowl, very prettily gronped about a bit of marsh, with artificial water, rocks, ferns, lilies, etc,; it is contributed by Mr. J. Sand, of Toronto. A number of cases of both Canadian and foreign birds by Mr. S. Herring, taxidermist, Toronto, among which we noticed particularly some English game birds, such as quail, pheasants and partridges; a pair of East India pheasants, California quail, bitterns, a large case of owls, ducks, gulls, hawks from various parts of the world; another of herons and other birds; others of ducks, snipe, &c,—the whole well mounted and carefully preserved. In Botany an excellent collection of Canadian plants by Prof. Macoun, of Belleville, comprising no less than 1565 species, viz. of exogens 735, endogens 381, acrogens 79, and anophytes 320. A collection of Canadian ferns by the same exhibitor, who is well-known as one of the best botanists in the Dominion. A very fine and well-prepared collection of native medicinal plants and roots also by Prof. Macoun. A neatly-prepared collection of Canadian plants by Miss Marton, of Guelph. The only other entries in natural history were by Mr. S. Wilmot, of Newcastle, who exhibited a series of aquaria stocked with salmon in their different stages, white-fish, and speckled trout all of his own rearing, and also the breeding apparatus filled with salmon

ova. This is certainly one of the most interesting and valuable portions of the whole exhibition, and many thanks are due to Mr. Wilmot for the amount of trouble that he has taken in bringing up so cumbrous an apparatus for the edification of visitors. His success in this somewhat novel branch of industry has thus far been very encouraging. Less than four years ago he began with four salmon; this year he has sent out from his ponds no less than 250,000 young fish. We trust that his good example will be widely followed, and that in a few years all our rivers and streams may be stocked with fish, and salmon become as cheap and abundant as they were in the days of the first settlers.

Annual Meeting of the Agricultural and Arts Association.

The annual meeting of the Directors of the Provincial Agricultural Association was held on Oct. 6th in the Agricultural Hall. There was a large attendance, not only of delegates, but of visitors from various parts of the Province. Hon. David Christie, the President, occupied the chair.

The President in his address adverted to the prosperous condition of the agricultural interest, and the happy continuance of peace in this country. He referred to the success of the present exhibition, and gave the financial statement of the year from the 1st of January to the 20th September, as follows:—

RECEIPTS.

Balance on hand 1st Jan., 1870	$1,649 97
Prizes unpaid and returned	12 00
Miscellaneous sources	791 54
Rents of Hall and shops	900 00
Government Grant for 1870	10,000 00
Rents for Booths to date	1,510 00
	$14,843 51

PAYMENTS.

Salaries	$1,328 32
Board expenses	1,206 75
Miscellaneous (payment to Glackmeyer, $1,000, etc)	1,397 87
Printing and Stationery	595 84
Legal expenses	229 19
Exhibition	229 00
Prizes	13 00
Veterinary School	550 00
	$5,544 97
By balance	9,298 54
	$14,843 51

He vindicated the management of the Council, and deprecated any transfer of power from that body into the hands of Government. He then very appropriately set forth the advantages of agriculture as a pursuit, and in the course of his remarks on this subject observed:—"My conviction is that we have lessened, *most materially*, the *grain-producing* power of the country, by the excessive drain which we have made on it for so many years. There can be no question that the most direct and economical recuperative process is in increasing the number of acres of grass, and diminishing the number of acres of grain—in other words, by *more* and *better stock*, and *less grain*. After all, I should not say that the result will be *less grain*. The acres in grain would be fewer, but the gross product would be much larger, while we should have more beef, mutton, and pork, and of better quality. It is also of the greatest importance to economize food for stock as much as possible, because *labour* is *money*, and labour costs a good deal of money in Canada. There are *two* ways of doing this—by improving the quality of the stock, and by economy in the mode of giving them their food. Some years ago I was much struck with the truth of a remark made by a farmer at a meeting of a farmers' club in Yorkshire The subject under discussion was the kind and quality of stock which farmers ought to keep. He said, "*I cannot afford to keep inferior stock, it is too expensive.*" This is true to the letter—inferior stock is too expensive to be profitable; that is, food, which has cost a great deal to produce it, is given to animals which, from their nature and conformation, give the poorest possible returns: there can be no economy in that. I do not wish to be understood as insisting that every farmer ought to keep a thoroughbred herd; that is a business by itself, for as Thomas Bates once said with entire truth, "There are twenty men fit to be premier for one that is fit to be a breeder;" yet, every farmer who breeds cattle, or sheep, or pigs, ought to have pure-bred males, and to use no other if he can get them, because it is only in this way that he can cheaply raise animals which will give the largest return for the food they get. Much may also be done in the way of economizing food by the mode in which it is given. Of course food will go much further when it is prepared in such manner as will give the digestive organs as much aid as possible, such as by cutting and steaming, and by crushing grain, etc.; but I specially refer to a practice which is becoming more common than it was, namely, giving stock a portion of grain or other condensed food while on pasture, and by soiling. Many recent experiments have been made which show that a very large saving can be effected by this process. The most extensive Canadian experiment has been made at Bow Park. Mr. Brown has expressed himself to me in terms of high commendation of this mode of feeding, as proved by his experience; the results of which, it is to be hoped, he will make public.

"When I had the honour on a previous occasion (15 years ago) to address you, I alluded at some length to the great necessity for more thorough and systematic agricultural education So much does want of it still appear to me to be urgent, that I feel it to be my duty again to refer to the subject. The question is, what can be done to supply the deficiency? We have an agricultural class in University College, and an able, experienced teacher, but few students. My conviction is that the work must be more radical: it must begin in our common schools; that is, elementary agricultural and mechanical instruction should form a leading part of the teaching. Dr. Ryerson has published a valuable little work on agriculture, which I hope to see made a text book in all the rural districts. Unquestionably, the result of giving elementary instruction would be not only to impart much important scientific and practical knowledge, but to make the farmers' sons of the country feel the importance and dignity of the profession of agriculture. Dr. Ryerson has done good service to the country by compiling the manual to which I have referred, and I hope that he will see to it that the benefit which it is so well calculated to confer shall not be lost to the country. It is a good thing for the cause which we desire to promote that we have so able a coadjutor as the Chief Superintendent of Education. I feel convinced that he will soon make agricultural and mechanical instruction a leading feature in our common school teaching."

The next topic taken up was the Veterinary College, in reference to which the proceedings of the Council and the reports of the institution have been already published.

The grant to the Entomological Society was mentioned, and the address concluded with some observations on the change in our own tariff, by which live stock for the improvement of breeds is to be admitted free of duty. He lamented, however, that our American brethren had not reciprocated the action

A vote of thanks to the President for his able address was passed unanimously.

The question of the next place for holding the Exhibition was then discussed. A large number voted in favour of Ottawa, but a majority of 77 against 51 decided in favour of Kingston

Fruit Growers' Association.

ANNUAL MEETING.

The Fruit Growers' Association of Ontario held their annual meeting in the Agricultural Hall, Toronto, on Tuesday evening, October 4th, 1870.

President Burnet occupied the chair. The Secretary read the proceedings of the last meeting, which were approved.

The Directors' Report was then submitted, which contained the discussions of the meetings held at Brantford, Hamilton, London, and St. Catharines; the Prize Essay of W. Saunders, Esq., of London; the report of Mr. Saunders on the rewards offered for the capture of curculio; the report on the distribution of the Eumelan Grape; the returns received to the questions issued; an account of the fruit received from the Fruit Growers' Society of Nova Scotia; and the circular, embodying the objects and benefits of the Association.

The Treasurer's Report was then read, showing—

Balance in Treasury since 20th Sept., '69	$ 318 64
Members' fees since 20th Sept., '69	881 00
Government grant, August, 1870	250 00
Total	$1,049 64
Disbursements since 20th Sept., '69	860 41
Balance	$ 189 23

The President read his annual address, which was listened to with deep attention.

Mr. Saunders, of London, moved, seconded by Mr. Ross, of Goderich,—That the thanks of the meeting be tendered to the President for his very interesting and able address, and that he is requested to furnish the Association a copy for publication in the proceedings, which motion was carried with applause.

The meeting then proceeded to the election of officers, with the following result:—

President—Rev. R. Burnet, of Hamilton.

Vice-President—Mr. J. C. Rykert, M.P.P., St. Catharines.

Secretary-Treasurer—D. W. Beadle, St. Catharines.

Directors—Messrs. Jas. Dougall, Windsor; W. Holton, Hamilton; W. H. Mills, Hamilton; W. H. Boulton, Toronto; A. B. Bennett, Brantford; Geo. Leslie, jr., Toronto; W. Saunders, London; A. M Ross, Goderich; and Chas. Arnold, Paris.

Auditors—W. L. Copeland, St. Catharines; and W. J. McCalla.

Notice of motion to amend the Constitution of the Association, so as to separate the offices of Secretary and Treasurer, having been given by Mr. Mills at the Brantford meeting,

Mr. Mills brought the motion forward, and explained that his object was to secure to the Society greater checks upon the funds than could exist under the present arrangement, and not that he had any objections to urge against the person who had held the offices of Secretary and Treasurer.

No person seconding the motion, it was withdrawn.

Miscellaneous business now being in order,

Mr. Hammond, of Credit, asked how the Association classed the Ribston Pippin, whether as a fall or winter apple.

Mr. Dougall, of Windsor, replied that its season of maturity depended upon the place where it was grown; that in the varied climate of our Province—embracing the long, warm summers of the South of Essex, and the short, cool seasons of the Muskoka District—the Ribston Pippin was in the former an early fall apple, quite dry and mealy now, and in the latter was a winter apple, keeping well until March.

Mr. Leslie, of Toronto, said that it varied much also with the warmth of the summer, in some seasons ripening up early, and in other and cooler seasons ripening more slowly and keeping much later.

Mr. Caldwell, of Galt, stated that the apple kept well until March in that section, and was truly there a winter apple.

Mr. Arnold, of Paris, asked what are we to do in judging when the apple is entered both in the fall and winter varieties? and suggested that the method of classification now in use should be abandoned, and that prizes should be offered only for the best samples of particular kinds, without reference to their season of ripening, so that the judges would have to determine which was the best sample of Ribston Pippin, or Snow Apple, or Greening, and not which was the best fall apple or winter.

Mr. Beadle stated that, thanks to the efforts of the President and Vice-President, a beginning had been this year effected in this direction, which it was to be hoped would be carried out in all the departments of the fruit list.

Mr. Rykert stated that as soon as the Board of Agriculture should place sufficient prize money at the disposal of the Committee having in charge the Horticultural department of the prize list, this much needed reform would be effected.

Mr. A. M. Ross, of Goderich, wished to know the cause and cure of the rot in the fruit of the plum. He had suffered much from this rot during the past season, much more than from the curculio, and deemed the rot a far more serious obstacle to the successful culture of the plum than the little turk.

Mr. Saunders, of London, had also suffered severely from this rotting of the fruit, but could not suggest any remedy.

Mr. Dougall, of Windsor, had taken pains to have all the rotting plums carefully gathered and thrown on the ground, and then covered them and the ground under the plum trees with quicklime, also dusting quicklime freely through the tops of the trees, and thought he had in this way been successful in putting a stop to all further spread of the disease. He believed that this rotting was caused by minute fungi fastening on the fruit and developing there, and that the quicklime destroyed the fungus. The rot could not have been caused by the weather, for there had been no rain there for three months.

Mr. Mills, of Hamilton, thought that the rot was not caused by a fungus, but that the rot having begun, and the state of the atmosphere being favourable to the growth of this fungus, it found in the rotting portion of the plum a favourable place for its growth and development. He thought the rot was caused by warmth and moisture occurring at a certain stage of the growth of the plum; and when this did not occur at that particular stage the rot did not occur, hence the plums in some seasons escape the rot altogether.

Mr. Ross said that last season was very wet, and the fruit on only two of his plum trees was affected by the rot, and these were shaded by other trees; this year the rot spread from those affected last year to the trees adjacent, while the trees in another part of his garden wholly escaped; hence he thinks that the rot is infectious in some way, and that if once introduced, if no way of stopping it can be discovered, it will continue to spread until the fruit on all the trees in the vicinity is affected.

Mr. W. H. Boulton, of Toronto, said that the fruit on trees standing in the open ground in his garden was not affected, but on trees at the south side of a board fence the plums had rotted very considerably.

Mr. Arnold, of Paris, believed it to be an infectious fungus, which under favourable conditions grew upon the fruit, causing it to rot.

Mr. Saunders, of London, asked why some of the plums on his trees should be rotten and others near not at all affected, if the cause of the rot be an infectious fungus?

Mr. Arnold replied that he had not observed such a state of things, but that the rot spread to the plums adjacent.

Mr. Mills, of Hamilton, did not think that the rot is caused by fungi; and that the reason why some plums on the tree escaped while others rot is in the difference in the texture of the skin of different plums on the same tree, and that those having a skin whose texture resists the influences of moisture and heat escape the rot.

[Note by the Horticultural Editor—Gentlemen in this discussion made use of the term "infectious fungi;" but they did not mean to be understood as using that term in the usual sense of the word, "*infectious*." Fungi increase by means of minute spores, which are perfected under favourable conditions in a very short time, and in countless millions. These spores are very minute, float in the air, and are carried about by the lightest currents, and these falling on a surface suited to their growth, under conditions of moisture and heat favourable to their germination, soon develop into a perfect plant, again perfecting its spores, to be in turn carried by currents of air and deposited upon some spot where they may germinate and perfect themselves.]

The President announced that the next order of business was the discussion of the subject of fruit culture in its relations to the farming interests of the Province.

Mr. Mills stated that as the hour was getting late, now half-past nine, he would move that the discussion of this subject be postponed, and that the meeting do now adjourn.

This motion was carried, and the Association adjourned, to meet in the city of Hamilton, at the call of the President.

Ontario Beekeepers' Association.

ANNUAL MEETING.

The annual meeting of the Ontario Beekeepers' Association was held in Victoria Hall, Toronto, on the 5th. The meeting having been called to order by Rev. W. F. Clarke, President of the Association, the minutes of the last meeting were then read by the Secretary and approved, after which a few very appropriate and interesting remarks were made by the President. The meeting then proceeded to the discussion of the following questions:—Is there any danger of stocks having too much honey for wintering well? It was decided that there is not. What is the true principle of ventilating stocks in the winter, and how may it be secured? After a somewhat lengthy discussion it was decided that the true principle of ventilation consists in retaining the heat, but allowing the moisture to escape. In what respect are the Italian bees superior to the black bees? After a pleasant discussion it was decided that they were more prolific, more inclined to swarm early, hardier and better honey gatherers.

The officers were then appointed for the ensuing year as follows:—Rev. W. F. Clarke, President, re-elected; J. H. Thomas, Vice-President; A. C. Attwood, Secretary and Treasurer; Executive Committee—H. M. Thomas, D. A. Jones, G. Bennett, B. Losee, D. M. Beckie

The meeting was then adjourned, to meet again on Thursday evening in Victoria Hall, Melinda street.

SECOND DAY.

In the absence of the President the meeting on Thursday evening was called to order by the Vice-President. The meeting proceeded to discuss the following questions:—

Which is the most profitable way of disposing of late or weak stocks? It was decided it was best to take them up.

The opinion was generally expressed that the honey extractor was likely to come into general use among bee-keepers.

After considerable discussion it was decided that it was doubtful whether artificial impregnation could be reduced to successful practice.

After much discussion it was unanimously decided that in ordinary seasons it is unsafe to take honey from the body of the hive later than the first of July.

No decision was arrived at on the question, What is the best plan to prevent swarming?

Have any cases of foul-brood been discovered? It was answered that four cases had been observed.

Do queens mate more than once, and are queens ever partially impregnated? After some discussion it was decided in the affirmative.

The meeting then adjourned, to meet again at the time and place of the next Provincial Fair.

Quebec Provincial Exhibition.

Montreal was favoured with superb weather for the grand attractions of the Show week, and it was fortunate that the great boat race at Lachine did not take place till after the principal days of the Agricultural Exhibition; otherwise it is to be feared that on an occasion of such peculiar interest, aquatics would have robbed agriculture of a very large proportion of her votaries, and the crowds that thronged the Show grounds at the base of Mount Royal would have been found on the river side at Lachine. As it happened, there was ample opportunity on Tuesday and Wednesday (Sept. 13th and 14th), for the public to view the very excellent Exhibition with which the Quebec Board of Agriculture have inaugurated the new Fair Grounds at Montreal. These grounds are situated north-west of the city, and comprise an oblong area of about 21 acres. The land was but recently purchased, and was in a very rough condition. The preparatory work of draining and levelling has been done, the whole has been fenced in a substantial manner, and temporary structures have been erected for the Exhibition. These will be replaced by more permanent buildings for future shows. The horse sheds occupy one side of the grounds, along its whole length; and a similar row of covered stalls have been provided for cattle on the opposite side. In the centre of the ground is a building forming three sides of a square, for the Industrial department; south of this long sheds have been erected for sheep and poultry, and to the back similar structures were set apart for swine.

On the whole the exhibition of the present year compared very favourably with that of 1868, and in some respects showed marked improvement. Taking the live stock in the order of the Prizo List, the Horses claim precedence, and this class was well filled. There were altogether a large number of entries, (nearly 200,) and many animals of superior merit. The competition was mostly confined to stallions, which were consequently in great force. The principal breeds represented were Clyde, Percheron, Normandy, Suffolk and Canadian. Among the first there were some splendid specimens of great weight and power, and well calculated to give a good frame and muscular development to the agricultural horse. The Percherons seem to be coming into favour in the Province, and might with advantage be introduced into Ontario. They are powerfully built, mostly grey in colour, of good size and great strength, with a marked do-

cility of temper, and greater quickness in action and pace than the Clydes. A fine specimen of this breed lately imported by Mr. Wright, of L'Assumption, gained the first prize. The Beauharnois Agricultural Society also showed fine specimens of both breeds. The Canadian horses, of which there were several good examples, present a close resemblance to the Normandy horse, from which they originally sprung. There was a magnificent Suffolk horse (Duke) on the ground. The animal is now owned by the Huntingdon Live Stock Importing Society, but was imported from England by Mr. Cochrane. There was a fair show both of heavy and light draught stallions, and a goodly array of colts and fillies of the general agricultural variety. One of the principal attractions of this class was a very fine "coaching stallion," imported from England by Mr. Hyndman, and now owned by the Huntingdon Live Stock Importing Society. He is a superior animal, dappled brown with black joints, seems full of power combined with activity, and looked the beau ideal in form, speed, style, and action of a carriage horse.

The Cattle class comes next in order, and formed a main feature of the Exhibition. Mr. Cochrane was, in every sense of the term, the principal exhibitor, and showed nine of his recently imported animals. These, though not the choicest of his herd, are really magnificent specimens of the Shorthorn breed. The lot shown by him, consisted of a two-year old bull, "Old Sam," and a one-year old bull, "Star of the Realm," two Booth cows, "Lady of the Lake" and "Jessie Hopewell," and one of Bates' strain, named "Potentilla;" two heifers, (two-year old) "Lady Highthorn" and Baddow Rose;" a yearling heifer, "Phillis IX," and a bull calf. Some of the above had but just arrived on the continent, after a calm and prosperous voyage, which they had weathered without the slighest injury. Among the last arrivals was the famous cow, "Lady Grateful," for which Mr. Cochrane paid Mr. Booth the unprecedented sum of 1,500 guineas. This was too valuable an animal to expose to the risks of travel and showing, but those on the ground were of such a high order of excellence as may well prove to the Canadian breeder what may be attained by careful breeding.

The Ayrshires were most numerously represented, and appear to be growing in favour in the Province. There were over a hundred entries of this breed, and perhaps not a poor one amongst them. Taking them altogether, they were the finest lot that have been exhibited in Canada. The first prize bull, "Mars," owned by Mr. J. L. Gibb, is as perfect a specimen of the breed as can be desired, and cannot be exceeded on the continent. A considerable number of these Ayrshires were quite recent importations, and one of the best was literally transferred from the ship to the show-yard. Messrs Gibb, Whitney, Dawes, and Irving, the gentlemen who have most largely imported this valuable breed into the country, deserve great credit for their spirit and enterprise. For dairy purposes exclusively, Ayrshires are, without doubt, the best unmixed breed.

Of Herefords there were but 7 entries, and a very fair lot. In fact this breed scarcely ever fails, wherever shown, to hold the first rank, as regards evenness of quality, amongst individual specimens.

Devons were but scantily represented, there being but eleven entries, and these, with the exception of the prize animals, were of very inferior order.

The Galloways were represented by just four specimens not deserving any special notice. The breed, valuable chiefly for its hardiness, is evidently not in favour.

Mr. Sheldon Stephens showed a lot of 21 Jerseys, very beautiful animals—4 bulls and 17 cows and heifers, of all ages. The original importation was made two years ago, and the herd has largely increased in the interval. The best were purchased from Prince Albert's farm. They were erroneously classed as Alderneys. It would be well for agricultural societies to include the Jerseys, Alderneys, and Guernseys together, under the name of Channel Island cattle, in order to prevent confusion.

There were two prizes offered for the best herds of cattle, comprising one bull and 5 females, of any age; the first, or Prince of Wales' prize, being $60, and the second, by the Bureau of Agriculture, $50. The Prince's prize was awarded to Mr. Cochrane for a herd of Shorthorns, consisting of Old Sam, Lady of the Lake, Jessie Hope well, Potentila, Baddow Rose and Lady Highthorn: the second was awarded to a herd of Ayrshires.

The sheep classes were tolerably well filled, especially that devoted to Long-wools other than Leicesters or Cotswolds. Of Cotswolds there was a capital show, including many fine animals either imported or bred by Mr. Cochrane; among them a magnificent Shearling ram, which deservedly attracted general admiration, and a pair of ewes that took the prize at the Royal Agricultural Show this year. The Leicesters and Southdowns were of less account, but the class of Long-wools as a whole showed to advantage, with many fine cross-bred specimens of an admixture of Leicester and Cotswold blood.

Of the swine, it would not perhaps be too much to say that it is not often that a better class of pigs is met with than the Suffolks and Yorkshires shown here. They monopolised the lion's share of 118 pens; the Berkshires making a numerically small remainder. Some recent importations shewn by Mr. Cochrane were among the choicest of the class.

There was a tolerably fair show of poultry, well accommodated as to shelter, and rather better arranged as to varieties than in former exhibitions; but they would have shown to greater advantage in uniform pens, which can only be secured when provided by the Directors of the Exhibition, instead of being left to the fancy of the exhibitors. Mr. Stephens' Dark Brahmas were excellent birds.

The display of implements was not large, but possessed some special features of interest. One thing worthy of note was the number of implements shewn by the firm of Evans & Co., who have, what is much wanted in the principal cities of Ontario, an Agricultural Implement store, where the farmers can procure almost anything in this department, instead of being obliged in every case to ascertain the name and locality of the manufacturer, and obtain the desired article from him. This has been often felt as a serious inconvenience in Ontario. A double-furrow plough may be mentioned among the novelties. Much interest was also manifested in a brick machine in actual operation. Judging by the expeditious and capital work turned out, it has every promise of being a most useful invention. The patentees and exhibitors were Messrs. Bulmer and Sheppard, of Montreal. The machinery appears simple and effective. The prepared clay is fed at the top, well worked and mixed within the apparatus, and pressed into moulds at the bottom. The bricks are turned out six at a time, every few minutes, perfect in shape and solidity. A man carries away each tray as it is delivered, and replaces it with an empty one. Two men and three or four boys are all that are required to attend to the machines. It is said to be capable of turning out 15,000 bricks a day. The amount of pressure can be regulated with the greatest nicety by the operator who attends to the moulds, and there is a contrivance by which, if any stone or other obstruction impedes the working, the parts are thrown out of gear, and the impediment can at once be detected and removed. The machine on the ground was worked by two horses, but it is equally adapted for steam power. The proprietors intend to exhibit this invention at the Ontario Provincial Fair.

A small steam engine and screw, constructed for a miniature propeller, also attracted considerable notice. It was made by Mr. Gilbert for the Harbour Commissioner. The entire weight of the engine and boiler is 29 cwt., the length of the boat is 36 feet, and it draws but 3 feet of water. The remaining implements consisted of the usual array exhibited on such occasions.

The display of grain, roots and dairy products occupied a comparatively small shed, and was in no way remarkable.

The Industrial Department, for which a temporary wooden building had been erected, was comparatively small in extent, and the articles, for the most part, were contributed by Montreal exhibitors. The utmost was made of the limited space, and the general arrangements, under the direction of

Mr. Pell, were excellent; but there was not sufficient light for an adequate display. On entering, the building the visitor was first attracted by the tastefully arranged stand of Messrs. Winning, Hill & Ware, who are celebrated for their cordials, liqueurs, syrups, and other articles of a like nature. This firm carried off the gold medal at the Paris Exposition. There was a fine display of domestic and monumental marbles from the respective firms of Forsyth and Mavor; and, adjoining these, were interesting displays of ornamental slate in imitation of various marbles. The patentees, A. K. and W. I. Mills, prepare this "marbleized slate" from the best material quarried in Vermont, and by putting on the marbled surface within the Province, can offer the manufacture at a much lower price than it can be imported from the States. The material is admirably adapted for a variety of purposes, and its introduction into Ontario would be a great advantage. The proprietors exhibited ornamental fire places, and a number of other articles, in very elegant and effective styles. It is very cleanly and well adapted for many homely domestic uses, as well as for decorative objects.

A large proportion of the building was occupied by stoves, furnaces, and the like. There was a fine display of carriages, a great variety of sewing machines, and a fair assortment of household furniture; besides a miscellaneous collection of manufactured articles, altogether too numerous to particularise.

The Show was, on the whole, a good one, and attracted a large concourse of visitors. With the improved accommodation and arrangements which will, no doubt, be carried out before another year, the Council of Agriculture hope to establish an annual Exhibition, which will assuredly be of great service to the Province in stimulating progress in the various industrial arts.

The Western Fair.

The Western Fair, under the joint auspices of the East Middlesex and London Agricultural Societies, was held in the show-grounds of the latter city, on the 27th and two following days of September, and was altogether a success. The weather was fine, and the grounds were filled each day by a large gathering of visitors.

HORSES.

The number of entries in the horse class was unprecedented, and the stalls were crowded to excess. Many should never have been exhibited, but there were in nearly every section animals that deserved distinction. Of blood-horses there was only a small show; but the numbers and general excellence of those in the agricultural section were considerably above par, while the chief bulk of the show in this department was made up by the road and carriage horses. In the heavy draught class there were some fine imported specimens—one shown by Mr. Buckland, of Guelph, was deserving of special notice. He is a Suffolk Punch, named "Britton," 4 years old, a powerfully built animal, and had in England twice gained prizes at the Royal Society's shows. Thomas Evans also showed a fine imported draught horse, "Canaby," 5 years old. There were also good native bred specimens of the same breed.

Among the agricultural horses considerable difficulty was experienced by the variety and distinct character of the animals entered under this head. Some were too light, and should have been considered roadsters, and others were decidedly too heavy and fitted only for draught work. The first prize for aged horses in this class was awarded to G. Teasdale, of London, for a fine bay stallion, "Royal Oak," 5 years old; and the 2nd to Leonard Hunter, of Osbourne, for his horse "Young Coachman," that has been a successful competitor in previous years. The 3rd prize was gained by A. M. Leach, of Brooke.

In the 3-year-old section, the highest place was gained by James Jackson, of North Dorchester, for a well-known stallion "Hard Fortune." The 2nd prize in this section went to Thomas Hodgins, of Biddalph, for a good bay named "Rob Roy."

The 2-year-old section contained one of the most promising animals on the ground, a bright bay, which deservedly took the first prize. He is the property of Daniel Flood, of London, was sired by "Anglo-American," and is a remarkably fine animal.

A few good yearlings were shown in the same section. "Captain Wallace," a horse of some celebrity, owned by Mr. J. Mason, of Clinton, was exhibited, but failed to get a prize. A beautiful black French Canadian stallion was shewn by Lachlan Wier, of St. Thomas, and was entitled to an extra prize. Among a number of good matched horses, a pair of superb greys, owned by J. Rutledge, of London, gained a first prize, and a promising pair of bays the second. In road and carriage horses Mr. Buckland shewed an imported animal of much merit. This section was very numerously filled, as was also that of horses for general purposes.

CATTLE.

The Durham class was well filled, there being 123 entries. In the two-year old section, Mr. McLeish gained the first prize for a roan bull, and Major Greig the second for his red and white bull, Harold—a decision which, in our opinion, should have been reversed. The yearling bulls were also good, and a very promising animal, shown by J. S. Smith, and bred, we believe, by Messrs. White & Kirby, took the first honours. Col. Taylor carrying off the second for Proud Duke, bred by J. O. Sheldon, of Geneva. In the yearlings, J. McGogan, of Strathroy, gained the first prize and diploma for the best bull on the ground. There were some excellent aged cows; the honours in this section went to J. S. Thomson, of Whitby, for Duchess 8th, who gained the first place. His yearling heifers, Christabel and Sylvia, attracted much attention, and won the highest honours in their classes. Major Greig's 6th Duchess of Oakland obtained the first prize in her class, two year old heifers; while in three year cows Bride of Greenwood was placed third, being beaten by Thomson's Queen of the May for first place, and Colonel Taylor's Elgitha for second. For Duchess 6th, of Oaklands, Major Greig gave $1,500 at the McMillan sale in Xenia, Ohio. Bride of Greenwood was also bought on the same occasion. Several of the others were from Mr. Cochrane's stock. The other breeds of cattle did not come up in numbers or excellence to the Shorthorns; but the Devons were, on the whole, a good class, and some of the animals shown were perhaps the best of that breed in the Province. There were a considerable number of grades, some of them crosses with Shorthorns, of superior excellence. There was also a fair show of fat cattle and working oxen.

SHEEP AND SWINE.

In addition to the live stock already noticed, the London fair had a good display in other classes of animals. The show of pigs and sheep, however, was seen to some disadvantage from the disproportion between the accommodation which had been provided for a Provincial Exhibition, and the diminished, though respectable, number of occupants in this local fair. Barring the drawback of long rows of empty pens, there was altogether a fine collection of Leicester and Cotswold sheep, and a few of other breeds. Among the pigs were a large preponderance of improved Berkshires, with some good Suffolks. Mr. Roach, of Hamilton, was among the most meritorious exhibitors, and had on view, besides a large number of animals bred by himself from imported stock, four recent importations of great value, consisting of an improved Berkshire boar, 13 months old, a Suffolk boar and two young Suffolk sows. Mr. John Corrie also exhibited some remarkably good animals, and among them a beautiful imported Berkshire hog.

POULTRY.

Of the poultry one expects in London a superior show, for the city and neighbourhood claim some of the most successful breeders of this class of stock. In the present exhibition there were a large number of entries, but a very considerable proportion failed to show, and the display, though a fine one, was in consequence much crippled. The season of the year is also somewhat unfavourable, and many good birds were in poor feather, and not at all in show condition. Notwithstanding these disadvantages, there was a fine display of nearly every variety of fowl. Among Mr. Lamb's best pens were buff and white Cochins, and a beautiful pair of silver pheasants. Mr. Peters showed some fine Dorkings, besides other excellent birds. Mr. Bogue's silver Polands were magnificent, as were also his silver pencilled Hamburghs. Mr. Fearman, of Hamilton, showed some superior dark Brahmas. Mr. Plummer and Mr. Lamb had each a fine collection of different varieties. Rouen and Aylesbury ducks were in force, and there was a good show of geese, both white and grey. A notable defect, which should by all means be remedied in future, was the absence of proper arrangements, a fault that seriously detracted from the effectiveness of the show.

IMPLEMENTS.

There was a fair display of the usual varieties of farm implements, contributed for the most part by well known exhibitors. Among the novelties deserving notice was a strongly built and effective stump machine, manufactured by Mr. John Plummer, of London, which seemed well calculated for its work. There was also a convenient construction of waggon, exhibited by Parker & Bateman, Strathroy, for the purpose of unloading by tilting over the box. This movement is effected when desired by the horses stepping forward. The same firm showed a simple and effective gate hinge, which allows of adjustment for snow, &c. Anderson & Johnson showed a meritorious invention styled a "lodged grain and pea harvester," which consists of a number of strong iron teeth that can be attached to any reaping machine so as to project beyond the ordinary guards.

HORTICULTURAL PRODUCTS.

This department of the exhibition was well filled, and the spacious shed appropriated to it presented a most attractive appearance. The display of fruit, especially apples, was unusually good, with a large competition, both in the general collections and varieties. For the best collection the first prize was given to one containing the following sorts :—Maiden's Blush, Cayuga Redstreak, English Russet, Northern Spy, Drap d'or, Spitzenberg, King of Tompkins' county, Beauty of Kent, Jonathan, Baldwin, Winesap, Dominie, Fall Pippin, Fall Orange, Canada Red, Golden russet, R. I. Greening, Kentish Fill-basket, and Snow.

The first prize for the four best varieties of dessert apples was given for Snow, Russet, Robin Hood and Golden Russet. For the best cooking apples—R. I. Greening, Gravenstein, Fall Pippin and Twenty-ounce. For the best 12 dessert apples (single variety)—Gravenstein, the best 12 fall cooking—Cayuga Redstreak—a remarkably good specimen; the best 12 winter dessert—English golden Russet; and the best 12 winter cooking—Rhode Island Greening.

The show of pears was small. The prize for the best six varieties was awarded for White Doyenne, Seckel, Glout Morceau, Louise bonne de Jersey, Flemish Beauty and Duchesse d'Angoulcme. The prize for the best three varieties was adjudged to Louise bonne de Jersey, Duchesse d'Angouleme, and Bartlet. In the single varieties Flemish Beauty carried the palm for dessert fruit, and Beurre Clairgeau for winter.

There was but a small show of plums. Mr. Saunders took a first prize for a plate of Dennistone's Superb.

Peaches also were but slenderly represented, the most meritorious specimens being seedling fruit raised by F. F. McMullen, the Verger of St. Peter's.

There was a remarkably fine display of grapes, to which the Hon. J. Carling contributed a meritorious collection, a noble bunch of Muscat Hamburg being conspicuous among them. Mr. Carling also showed a fine collection of plants in flower, which, with a similar one furnished by Mr. F. Rowland, and another by James Goodall, from the grounds of the late Judge Wilson, contributed much to the adornment of the room. The general display of flowers was, for the season, a good one.

Among the vegetables, the most worthy of note were potatoes, which were exhibited in unusual quantities and excellence.

The arrangements in the horticultural hall were excellent, while in some other departments, more especially the live stock, they were very bad. Another defect which, amid so much to commend, calls for passing notice, was the absence of any names of owners or premium cards, till the exhibition was nearly over. Reporters and the public were kept equally in the dark in these interesting particulars. There are some advantages in withholding the exhibitors' names, but we think the disadvantages counterbalance them; and, at all events, arrangements should be made for an early completion of the judging and announcement of the awards

IMPORTATION OF THOROUGHBRED STOCK.—Mr. John Miller, of Pickering, has just imported from England and Scotland a valuable lot of thoroughbred stock, consisting of one Shorthorn bull and eleven cows and heifers of the same breed—all of first-class pedigrees, and several of them prize-winners in British show-yards. He has also imported a number of pure-bred Cotswold sheep and Berkshire pigs.

Crops in the States.

An Associated Press despatch, dated Washington, Sept. 16, states :—

The August report on the crops, from the Department of Agriculture, says that the corn is injured somewhat in some localities by the drought, the wet weather, heat, worms, and heavy frosts, but not sufficiently as yet to threaten a material reduction of the product heretofore anticipated. The States showing a condition below the average are New Hampshire, Massachusetts, Rhode Island, Connecticut, Delaware, Maryland, Mississippi, Kansas, Nebraska, California and Oregon. There is considerable damage done to the cotton crop from rust, worms and unfavourable August weather, but the general prospect is not discouraging. There is little in figures to indicate a decreased yield of cotton, and favourable weather henceforth must insure considerable increase. Returns upon the wheat product pertain chiefly to the condition of the crops when harvested. The grain has not been threshed out to any considerable extent, so the October returns must be had before the estimate of the aggregate of wheat productions of the year can be made. The quality of the grain threshed is generally excellent, in many cases compensating for the deficient quantity. The rice and barley crops were generally harvested in good condition, with slight local drawbacks. There is an apparent diminution in the rye crop and also barley. Tennessee, Michigan, North Carolina, West Virginia, and Wisconsin are the only States in which the report of the prospect of buckwheat is above or up to the average. The middle or Western States indicate a decline of 5 to 10 per cent.; New England 15 to 20 per cent. The drought in many sections has materially injured the potato crop. In most of the States the quantity of the hay crop is above the average. Sorghum seems to have been entirely neglected east of Pennsylvania. The crop in most of the western States is reported in a fair condition. Louisiana and Florida report a sugar crop five to ten per cent. above the average. Texas, Mississippi, Alabama and Georgia report ten per cent below the average. California is the only State that reports an increased average in hops. The tobacco crop is reported 14 per cent. below the average in Connecticut; seven below in Massachusetts; 10 in Maryland; 17 in Mississippi; four in Texas; and two above the average in New York; five in Pennsylvania; four in Virginia; 14 in North Carolina; 10 in South Carolina; 13 in Georgia; 10 in Arkansas; 9 in Tennessee; 10 in Kentucky, and three in Ohio. There is an average in Missouri, Illinois and Michigan. There is much complaint of apples falling during the last two months and of retarded growth, caused by the dry weather. A fair product is promised in the eastern and middle States generally; and in Virginia, North Carolina, South Carolina, Tennessee and Kentucky, six-tenths of the average crops in the western States. The small decline in wool is favourable. The size and weight of the stock of hogs generally compare favourably with that of former years, except in several of the southern States and Illinois, Indiana, New Hampshire, Massachusetts, Connecticut and Oregon, which indicate depreciation in this regard.

This year will be remarkable in France for a great advance in the employment of agricultural machinery.

The International Agricultural Exhibition, announced to take place in Paris next year, has been brought to a stand still; and it would not be surprising if it was deferred, apart from the return of peace, till 1872.

EARLY ROSE POTATO.—This has proved to be the best second early potato this season, of good size, productive, and cooking dry and mealy. We commend it for trial.

The Quebec Board of Agriculture are about to compile and publish a Canadian Herd Book for Ayrshire Cattle, on a plan similar to the Shorthorn Herd Book issued by the Ontario Board of Agriculture.

The whole of the breeding stud of Colonel Townley, and the yearlings of Mr. Vaughan, were sold by auction by Messrs. Tattersall, at Fairfield. The sale was very slow, and many of the yearlings offered were withdrawn. There was only one case in which especial interest was shown, and that was in the competition between Mr. Hartington, of Limerick, Mr. Holmes, of Beverly, and Mr. Blenkiron, for possession of Breadalbane, own brother to Blair Athol, which eventually ended in favour of the last-named gentleman for £1,650.

A great breadth of barley has been raised this season in the county of Ontario, and the dealers expect large quantities will be brought to market. The Whitby *Gazette* says a great deal of barley has been carried over from last season, and advises all who are thus situated not to mix last year's crops with those of the present, as by doing so it will render the whole comparatively valueless. New barley malts more quickly than old, so that maltsters will not buy grain of different crops mixed together, as they cannot use them. Most of the barley crop is used for brewing purposes, and farmers will do well to recollect this caution, as otherwise they will find a difficulty in selling.

The Guelph monthly fair on October 5, had a large supply of cattle, but buyers were few and timid. The decline in beef in the United States, and the absence of the usual number of buyers at the Provincial exhibition tended to dull competition. The *Mercury* says fat cattle brought, live weight, from 3c to 4c, and one good animal sold for 4½c, which was considered a very good figure. Average animals sold at from $30 to $38 per head. Mr. Samuel Bidgeway, of Eramosa, sold a very nice heifer for $38. Milch cows were not in demand, and the class of animals offered was of inferior quality. The price asked ranged anywhere from $25 to $40. Sheep were on the ground in very small numbers. One middling lot was offered at $4 per head, but the buyers would not give more than $3, which was refused. Working oxen were present in considerable numbers. There was but little demand for them. A very fair yoke of these cattle could be had for from $75 to $100.

Miscellaneous.

Novel Application of the Sewing Machine.

The old country farmer, from his moist climate, and the large amount of manure he uses, both artificial and ordinary farm-yard manure, has more straw than he knows what to do with, and he also has more crops than he can think of putting entirely under roofed buildings. Consequently, the stack yard is to be found on every farm, containing a greater or less number of stacks of grain, beans and peas, and of hay, although generally there is a considerable amount of hay stacked near to its place of growth. But all these stacks are thatched with straw, and thus rendered completely weatherproof. The stacks of wheat, beans and peas, are only thatched on the roof, but barley, to prevent staining, is often thatched down the sides as well. The thatching bill in a large farm varies from £15 to £35 sterling annually.

Good thatchers are scarce, and some use more straw than others. Mistakes in the work happen, and then great destruction of the grain follows, for besides that which is absolutely lost, the sample of the whole is injured, and consequently reduced in price. In order to meet these difficulties, some ingenious person adopted the plan of constructing a large sewing machine, with large needles, sufficiently strong to carry good-sized tarred yarn, and of length enough to reach through the required thickness of straw. These machines put in two or more rows of stitching along the middle of a belt of straw, and at one end also in some cases. The straw is laid on a frame or table, and supplied in a continuous belt to the machine. The needles work alternately, so that one of them goes through the piece of straw stitched up by the other. The straw thus stitched together is rolled up in large rolls, and applied to the roof of the rick. The lower roll is put on first, all round the lower part of the roof of the rick, until the circuit is complete. The second row overlaps the first, covers over the stitches, and keeps them dry, the loose ends of the straw always overlapping. The mats or belts of straw are fastened on in the usual way, by pegs or spars stuck into the body of the roof of the rick, and thus the operation is effectually and quickly completed without the necessity of any specially skilled labour. Fifteen hundred feet superficial waterproof thatch can thus be made by hand power per hour; no doubt, when carefully taken off, it will last for more than one season.

Henry Ward Beecher on Interest.

No blister draws sharper than the interest does Of all industries, none is comparable to that of interest. It works all day and night, in fair weather and foul. It has no sound in its footsteps, but travels fast. It gnaws at a man's substance with invisible teeth. It binds industry with its films, as a fly is bound in a spider's web. Debts roll a man over and over, binding him hand and foot, letting him hang upon the fatal mesh, until the long-legged interest devours him. There is but one thing on a farm like it, and that is, the Canada thistle, which swarms new plants every time you break its roots, whose blossoms are prolific, and every flower the father of a million seeds; every leaf is an awl and every branch a spear, and every plant like a platoon of bayonets, and a field of them like an armed host. The whole plant is a torment and a vegetable curse—and yet a farmer had better make his bed upon Canada thistles than attempt to lie at ease upon interest

Building Lime.

As it is often of considerable importance to those who may wish to use lime for any of the purposes for which it is available that they should be able to distinguish a good article from that which is of inferior quality, we shall describe briefly a few of the common tests by which good lime may be distinguished from that which is poor. Of two pieces of lime about the same size, the heavier will usually be the best. There are a few marked exceptions to this rule, but in general it will afford trustworthy indications.

Good lime is greasy and unctuous to the touch; poor lime is dry and gritty; when good lime slacks in water it falls quickly, causes the water to boil up furiously, and gives out a great quantity of heat. The slacking of poor lime is attended with but a slight boiling of the water, and a small increase of the heat; moreover, the quantity of water required to slack good lime will be nearly one half its bulk. Good lime, when slacked, will swell to twice its original bulk, and if exposed to water continually changed, the lime will all be taken up without leaving any residue. Poor lime, when slacked, will swell to two and a half times its original bulk, and there will always remain a gritty residue, no matter how much water may be run over it.—*Am. Engineer.*

Advertisements.

WANTED

Boys, Young Men and Middle-Aged Men to train for Fall and Spring Business for the different cities, at the oldest, largest and only practical Business College and the only one providing situations for Graduates. Send for Catalogue of 3000 in business. Board and Tuition $110. H. G. EASTMAN, LL.D., Poughkeepsie, N. Y. v2-10-2t-eot.

THREE MONTHS FREE!

Tilton's Journal of Horticulture.

15 Months for $1 50!

Tilton's Journal of Horticulture.

15 Months for $1 00!

Tilton's Journal of Horticulture.

15 Month for Nothing!

Tilton's Journal of Horticulture.

15 Months for Nothing.

AND A SPLENDID PREMIUM GIVEN FOR TAKING IT!!

Tilton's Journal of Horticulture.

THREE MONTHS WILL BE GIVEN FREE to all who subscribe now for 1871, and by so doing one will get FIFTEEN MONTHS FOR $1.50.

FIFTEEN MONTHS FOR $1.00. By making a Club of Ten, each member receives Fifteen Months for $1.

FIFTEEN MONTHS FOR NOTHING. Any one making up a Club of Ten, and sending to us before the publication of the next number, shall have ONE COPY FREE!

FIFTEEN MONTHS FOR NOTHING, AND A PREMIUM GIVEN FOR TAKING IT. Any one who will make up a Club of more than ten, and sending to us before the publication of the next number, receives One Copy Free and a Premium as per Premium List.

J. E. TILTON & Co., Boston,
Publishers.

☞ *A Sample Copy, Club and Premium Lists, will be sent to any address upon receipt of Fifteen Cents.*

v2-10-2t.

USE NONE BUT THE BEST :—

TRADE MARK

OX AND SHEEP

SOUPS AND BEEF TEA FOR THE MILLION.

STRENGTHENING Nourishment! Economy in house-keeping! LIEBIG'S COMPANY'S EXTRACT OF MEAT, the same that received the highest prizes at Paris, Havre and Amsterdam, and that is supplied to the British, French, Russian, Prussian, and other Governments. None genuine without the signature of Baron Liebig, the inventor, and of Dr. Max V. Pettenkofer, delegate, on every jar.

J. MILHAU'S SONS, Company's Agents, 183 Broadway, New York. For sale everywhere. v2-9-3t

THOROUGH-BRED STOCK FOR SALE.

100 HEAD SHORT-HORNS, male and female, of all ages, including some fine Bull Calves. HEREFORDS, DEVONS AND AYRSHIRES; LEICESTER, COTSWOLD AND SOUTHDOWN SHEEP, including some fine Rams and Ram Lambs; BERKSHIRE AND SUFFOLK PIGS. Address

v2-9-2t J. MACKELCAN, Yorkville P. O., Ont.

VINEGAR, HOW MADE FROM CIDER, Wine, Molasses or Sorghum, in 10 hours, without using drugs. For circular address F. I. SAGE, Vinegar Maker, Cromwell, Ct. v2-9-12t

Steel Tooth Sulky Horse Rake

Will do more work, easier, cleaner, and better than any other. Does not gather dust in the hay. Will rake over rougher ground. Is light and strong, well-made and nicely finished. The teeth are fine spring steel, independent of each other, and will yield to pass obstructions. Took FIRST PRIZE at the Provincial Fair, London, 1869. For testimonials, &c., send for circular. As our manufacture for 1870 is limited, orders should be sent at once.

☞ Responsible Agents Wanted in every County. ☜

JAMES SOUTAR & CO.,
Foundry and Agricultural Warehouse,
v2-4-tf. *Chatham, Ont.*

NEW ARRANGEMENTS AND GREAT INDUCEMENTS.

Wishing to give more attention to the raising of bees and queens, I offer the following inducements till the close of the coming Provincial Fair:—

To any person sending $3, I will send my single-boarded hive with improved entrance, price $3, or an individual right, price $3, and my dollar book on bee culture, soon to be published; tickets will be sent for the book. For $5, both hive and right, or an Italian queen, and the book. For $10, or the highest bid above that during the next six weeks, a township right and the book. For $12, or highest bid above that, a township right, one hive, and the book. For $400, or highest bid above that, a right for the entire Province of Quebec, with the exception of two or three counties that are sold; this right is worth $2,500. For $200, or highest bid above that, I will sell a patent for a Self-oiling Buggy Hub, lately introduced; specimen carriage to be seen at Brooklin, Ont.; this patent is worth $2,000. Sale of townships not to interfere with sale of hives upon the above conditions.

J. H. THOMAS,
2-5-tf. *Brooklin, Ont.*

FOR SALE,

SIX high-bred, Young Short-Horn Bulls, one by imported Crown Prince of Athelstane (21,512), 5,467; the others by the Imported *Pure Book* Bull, "Knight of St. George," (26,544), 5,472.

D. CHRISTIE,
v2-5-4t. Paris P. O., Ont.

DOMINION OF CANADA

V. R.

EMIGRATION

TO THE

PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,
DAY-LABOURERS,

And all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy and stock a Freehold Estate with the money needed to carry on a small farm in Britain. Good cleared land, with a dwelling and good barn and outhouses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. Farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants, by the Government, is

A FREE GRANT OF LAND

(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain, on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are not liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of labourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz.: Wm. Dixon, 11 Adam Street, Adelphi, London, W. C.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and E. Simays, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; Jas. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; E. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Brunswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. v2-2-12t.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Oct. 14th, 1870.

FLOUR AND MEAL.

There is nothing of special interest to note in the breadstuffs market. The continuance of the continental war has but slightly affected prices either at Mark Lane, or in the United States, though if anything there is a slight upward tendency. The following are the Toronto rates:

Flour—Superfine, $5.15; Extra, $5.20; Fancy, $5.25 to $5.50.
Oatmeal—$4.40 to $4.50.
Cornmeal—$4.00.
Bran—$11.00 to $13.

GRAIN.

The demand for wheat is chiefly for local milling purposes. Barley is coming in pretty plentifully, but some farmers are still holding back for a rise. Oats are plentiful and prices remain steady.

Wheat—Sonies, $1.15 to $1.25; Treadwell, $1.10 to $1.12; Spring, $1 to $1.10; Midge Proof, $1.00 to $1.05.
Barley—Bright, 70c. to 75c.; inferior, 60c. to 65c.
Oats—37c. to 38c.
Peas—70c.
Rye—70c.

HAY AND STRAW.

Hay continues in good supply, and selling at $8.00 to $12.00.
Straw is scarce, and has sold as high as $10. From $6.00 to $8.00 may be considered the present price.

PROVISIONS.

Live Hogs—$6.00 to $6.50
Pork—Mess, $27.
Hams—13½c. to 17½c. wholesale.
Cheese—New, 12½c. to 13c.
Butter—17c. and upwards.
Eggs—12½c to 14c. per dozen.
Salt—Goderich, $1.65; American, $1.75; Liverpool, coarse, 75c. to 80c.; fine, $1.00 to $1.20.

CATTLE MARKET.

There is a free supply; many farmers running short of pasture and not intending to put over their stock during winter, are sending in their beasts to market.

Beeves—$3 50 to $5.
Sheep—$3.00 to $5.00.
Lambs—$2.25 to $3 25.

HIDES AND SKINS.

Hides—green, 8c.; cured, 9c.
Calfskins—11c. to 12c.
Sheepskins—65c.
Wool—30c. to 31c.

Montreal Markets.

Flour—Extra, $5 00 to $5 05; Fancy, $5 70 to $5 75; Welland Canal Superfine, $5 25 to $5 30; Superfine No. 1 Canada Wheat, $5 30 to $5 90; No. 1 Western wheat, $5 25 to $5 30; No. 2 Western wheat, $4 90 to $4 95; Bag Flour, $2.40 to $2 60.
Wheat—Canada fall, $1 15 to $1 16; western, $1 13 to $1 25 in bond.
Oats—Per 32 lbs., 40c to 42½c.
Barley—Per 48 lbs., 65c to 75c.
Butter—Dairy, 20c to 21c; store packed, 17c to 25c.
Ashes—Pots, $6 25 to $6 30; Pearls, $6 85 to $6 90.
Pork—Mess, $26 50.

Provincial Markets.

LONDON, Oct. 11.—Spring wheat, $1.20 to $1.29. Red Fall do, $1 to $1.09; White do, $1 to $1.20; Barley, 50c to 54c. Peas, 60c to 65c. Oats, 31c to 32c. Corn, 55c to 65c. Rye, 55c to 65c. Fleece wool, 28c to 31c.

HAMILTON, Oct. 11.—Delhi wheat, $1 20 to $1 22. Treadwell do., $1 05 to $1 06. red and amber, $1 05 to $1 06. Barley, prime, 70c to 78c; do., poor, 50c. to 55c. Oats, 34c to 36c. Peas, 55c to 60c. American fleece, 37c to 38c. Canada fleece, 30c to 31c.

OTTAWA, Oct. 11.—Flour—Extra, $7.25. Double, $6.25 to $7. No 1, $6.25. Oatmeal, $5 to $5 25. Cornmeal, $3.75 to $4. Oats, 50c to 52c. Peas, 60c to 70c. Wheat, $1.15 to $1.20. Pork, mess, $27. Beef, $5. Dressed hogs, $9 to $10.

GUELPH, Oct. 11.—Fall wheat, per bushel, $1.00 to $1.02. Spring, $1.05 to $1.15. Oats, 32c to 36c. Peas, 56c to 63c. Barley, 55c to 70c. Wool, 31c to 32c. Hides, per cwt, $5.50 to $6.50. Beef, $7 to $8. Pork, $7 to $8.50. Eggs, 15c to 17c. Butter, 15c to 19c. Pelts, 40c to 70c. Lambskins, 50c to 75c.

OWEN SOUND, Oct. 12.—Fall wheat, $1.; Spring do., 98c to $1 01. Barley, 50c to 60c. Oats, 29c. Peas, 50c to 54c. Butter, 15c to 17c. Eggs, 10c to 12c. Hay, $6 50 to $7.

Contents of this Number.

PAGE.

THE FIELD:
Late Autumn Work 361
Beet Root Sugar 362
A Backwoods Farm 364
Silver Beet as a Manure Plant 366
Barn-yard Manure 367
Sowing Timothy in Autumn; Wheat Midge in England; Insect Depredations 368

STOCK DEPARTMENT:
Housing Stock in Winter 368
Mellendean Leicesters (with illustration); Fattening Cattle 369
Selecting Stock Rams; Stallions for Common Labour 370
Kelso Ram Sales; What it takes to Sell a Cow; Stock and Crops for Farms 371

VETERINARY DEPARTMENT:
Nephritis, or Inflammation of the Kidneys 371
Struggles 372

THE DAIRY:
Why Winter Butter is Poor; Grinding Cheese Curds 372
Sulphur as a Deodorizer; Corn Leaf Fodder 373

HORTICULTURE:
Fruit Growers' Association—Autumn Meeting .. 373
Vine Culture in Australia 374
On Grapes—The Cheap Construction of Glass Houses 375
Profit of Grape Culture 376
Strawberry Growing for Profit; What is a Flower; Setting Out Orchards in Autumn; The Seed Crop of 1870; The Gladiolus in Poor Soil 377
Hamilton Horticultural Show; Brantford Horticultural Show; What is Fruit; Lawn Grass Seed; Evergreens in the Orchard; Covering Grass Seed 378

ENTOMOLOGY:
The Onward March of the Colorado Potato Beetle 379
The Poisonous (?) Tomato Worm; The Hop Louse 380

CORRESPONDENCE:
Capacity of a Root Cellar; Surfeited Pigs 381

EDITORIAL:
The Provincial Exhibition 381
The Colorado Potato Beetle; Notes on the Weather 382
Influence of cities on the atmosphere; The Pleasant Valley Fruit and Wine Reporter 383

POULTRY YARD:
Poultry Keeping on a Large Scale; Classification of Fowls 383
Rearing Young Turkeys 384

APIARY:
Artificial Impregnation; Productive Honey Season 384
Beware of Humbugs; Whence came our Honey Bees 385

POETRY:
Sword and Plough 385

HOUSEHOLD:
Preserving Eggs; To make old salt Pork sweet 385

AGRICULTURAL INTELLIGENCE:
The Provincial Exhibition 386-94
Agricultural and Arts Association—Annual Meeting; Fruit Growers' Association—Annual Meeting 394
Bee-keepers' Association—Annual Meeting; Quebec Provincial Exhibition 395
The Western Fair 397
United States Crops 398

MISCELLANEOUS:
Novel Application of the Sewing Machine; Henry Ward Beecher on Interest; Building Lime 399

THE CANADA FARMER is printed and published on the 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (POSTAGE FREE) payable in advance.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

P Agric C

THE CANADA FARMER

VOL. II. No. 11 | TORONTO, CANADA, NOVEMBER 15, 1870. | NEW SERIES.

The Field.

Early Winter Work.

By the beginning of December the farmer, if he is thrifty and industrious, will have completed most of his work, and gathered in all his crops safely under cover. Most that now remains to be done is the thrashing, cleaning, and marketing of his grain crops. There is an evident tendency on the part of many farmers to somewhat neglect the matter of properly cleaning their grain before taking it to market. So much has this been the case this fall that our barley, which usually ranks No. 1 and commands the top price from United States maltsters and brewers, has been brought to market in such a dirty state, and so full of foul seeds and failings, that the bulk of it has only ranked No. 2, and dealers on the other side will scarcely buy the cargoes sent over, unless at a considerable reduction below the price of western barley. This might easily be avoided by a more free use of the fanning mill, an implement that does not seem to be as much used and appreciated as it should be. A bushel or two of tailings or chaff left in a waggon load of grain, can, it is true, be passed off, but the entire sample will be rated at a price that will reduce the value of the whole much more than the loss incurred by leaving out the tailings would amount to. So far there is nothing to complain of in regard to prices, which are comparatively higher than last year, with a larger crop to sell; and really first-class samples are eagerly purchased at an advance on average values, while unclean and poor samples are neglected or can only be sold at a reduction.

IMPLEMENTS.—Now that the field work is over, every implement that has been in use should be brought in, cleaned, dried, and oiled or painted, and put away safely under cover, where no rain or snow can reach it. Let there be a place for everything and everything in its place before winter sets in. Every farmer should have a building set apart specially for the purpose of storing away his implements of husbandry when not in use. All that are broken or damaged should now be thoroughly repaired or replaced, and this done, there will be no time lost in spring when the season for work again comes on.

FENCING.—With the return of cold weather and a frost-bound soil, the farmer should endeavour to cut and split such rail timber as may be required for renewing or repairing of fences. This work is more easily done when there is little or no snow in the woods, than after the heavy winter storms come on. With the woods nearly clear of snow, it is much easier to see where to lay out the rails and pile them in places that are easily accessible when the sleighing becomes good enough to draw them to the clearings. Pathways for the team to get at them should be cleared out, while the nature of the ground can be seen, so that holes and bogs can be avoided. So also with the supply of firewood for next season, which may, however, be cut later, though usually some portion of each tree can be made into rail-cuts, while others may be cut into cord-wood. By a proper method of arranging this matter much valuable timber may be saved to a better use than burning, and much time and trouble saved to those who have to do the work of hauling out the rails and firewood to the yard and fields. If the work of looking over and repairing standing fences that do not require re-laying has not been done, no time should now be lost in attending to the matter.

STOCK.—All the animals on the farm should now be under shelter, and no longer allowed to roam over the fields even though they may still obtain a bit of frozen grass, which at best is scarcely equal to good clean straw. Those who have valuable stock will of course see to their being well housed and kept warm and comfortable as possible, with abundance of food and water. Animals intended to go to the butcher in spring or early summer should be put up to fatten before they lose their summer flesh. They need not be highly fed at first, but care should be taken to give them a sufficient supply to keep them in thrifty and improving condition, till the time comes for pushing them rapidly forward. Those who have saved their corn-stalks or sowed corn for fodder, will find it the best plan to begin by giving out this feed at the commencement, and if the stalks are cut and steamed along with some roots or crushed grain, they will need little or no hay so long as this fodder lasts. Pea straw that has been well saved and is perfectly free from damp or mouldiness, makes excellent food when cut and steamed, and has considerably more nutriment in it than the straw of cereal grain crops. Sheep will often thrive well through the winter on pea straw with the addition of some roots. Cows that are giving milk need extra feeding at this time, to enable them to keep up the supply and give any return in butter, for without good and rich food, such as the best of clover hay and a little coarse-ground pea or barley meal, the cream that comes from the milk will contain but little butter and be difficult to churn.

The store pigs must not be neglected, for upon their being kept thrifty and in a constantly growing state will depend the success of the farmer in turning out profitable pork. They should get warm quarters and plenty of food. Cut clover hay mixed in with steamed or boiled roots, ruta bagas especially, and given warm with a little pea meal added, is capital winter food for store pigs and breeding sows. Keep their sties dry and well littered with straw and sheltered from storms or snow drifts. Nothing can be more unsightly and liable to create disease among pigs than the filthy state in which too many farmers allow their sties to remain during cold weather.

SALTING DOWN PORK.—To have good pickled pork the meat must be from pigs not exceeding 150lbs. dressed. Cut out the hams, and cut the rest of the carcass up into medium-sized pieces of from 5lb. to 7lb. each. Rub each piece with fine salt, and set by for two or three days to draw out the blood.

UNIVERSITY OF TORONTO SEP 7 1954

Have a nice, but not very strong, well-boiled pickle, made from Goderich salt; lay the pieces in the tub or pickle barrel and pour enough of the brine on when quite cold, to cover the pork entirely. In about a month the pork will be fit to use, and may be kept for any length of time in the pickle, so long as it is fresh and good. If it begins to get the least bad taste, the brine must be re-boiled, or new pickle made, and the pork taken out and put in fresh tubs or barrels, and again covered with the brine.

Bacon and hams are best cured by first well rubbing in dry salt mixed with about one part in 400 of fine saltpetre, and afterwards covering with dry salt till they have become well salted, which generally takes three weeks, after which the meat is to be hung up in the kitchen to dry, or smoked, as soon as salted enough.

DITCHING AND DRAINING.—Much work of this kind can be done even after the ground is frozen or snow falls. It may be requisite to use the pickaxe to break the frozen crust, but that done, the soil underneath will be easily dug out. If the lines of the drains have been marked out, and the surface soil loosened by the plough, it will greatly facilitate the work. Tiles may be drawn on the land during sleighing, and everything got ready for an early commencement of laying the drains as soon as spring opens and the snow is gone, before the land is dry enough to be put under crop. The value of drainage to the soil is as yet little understood by our farmers, still there is always something being done towards the improvement of the soil, and good well-made under drains soon show profitable returns in the increase of the crops and the doubling of the value of the land.

MANURE.—Every effort should be made to increase the amount of manure made on the farm. Every dollar's worth of manure judiciously added to the soil gives a return of five dollars in the increased yield of succeeding crops for years afterwards. The manure heap is the farmer's savings bank, and pays cent. per cent. per annum for every dollar's worth of material and labour put into it. Everything in the way of vegetable matter, swamp muck, and scrapings of the roads and yard lanes that can be procured, should be hauled to the compost heap; and the droppings of the stock that are confined to stables and byres are better added to the heap than lost among the litter of the straw yard, which should rather be made the absorbent of the liquids, and get decomposed in the course of time. Too much of the manure is wasted by being scattered about in the straw, where it can not become of nearly so much value as if carried to one side and properly manipulated in the compost heap.

Of Peruvian guano, the total export last year was over 500,000 tons, of which Belgium took 82,000; England, 196,000; and North America, 25,000 tons.

Beet Root Sugar.

NO. VI.

Having now gone fully into the reasons why it is the interest of the farmers of Canada to engage in the growth of beet root of the sugar varieties, in the place of mangel wurtzel, and as an assistant to the turnip crop, I will proceed to the best-known methods of manufacturing the sugar, at the same time offering such suggestions for the purpose of simplifying the processes, as a considerable practice in general manufacturing, and good knowledge of mechanics and the practical chemistry of the industrial arts, may suggest. I make this as broad as possible, my object being to put on record the several methods of proceeding, so as to prevent persons patenting any of the processes, and thus delaying the introduction of the manufacture of beet-root sugar into Canada.

WASHING THE ROOT

This is the first process. The washing must take place in a rolling cage, in a trough partly filled with water, the cage being slightly depressed at one end, partly open at both ends, and the lower segment of the circle—the full length of the cage—being immersed in the water; the trough turns by machinery, with hand, horse, or steam power, and the roots are thrown in at the upper end; they gradually work along the cage, as it turns in the water, and are discharged at the lower end in a clean state. A stream of water should enter at the lower end of the trough, and flow through it, and out at the upper end, thus carrying the dirty water off, and leaving the *clean* end of the cage constantly supplied with *clean water*, whereby the roots are rinsed as clean as water will make them, with the least expenditure of water. The trough should in large concerns be fitted with a rolling cloth or frame of wooden slats closely joined together, which receives most of the dirt and sand, and carries it away. The water (where it is scarce) should flow off into a long trough or ditch, and be made to traverse as great a distance as possible, during which time it will deposit the dirt and sand, and may be used again from the farthest end of the ditch, and thus a great economy of water may be secured.

GRINDING.

This is done in several ways. In small concerns, or where better cannot be had, a sheet iron grater, punched like a nutmeg-grater, but of course much coarser, and made to revolve, will cut the roots into pulp at a considerable rate, but it should never be used where better can be had.

The next cheapest rasp, and one perhaps as efficient as any, may be made of a cylindrical wooden roller, with turned iron axles and journals, all, of course, fastened in a proper frame, and of strength sufficient to do the work without chance of breakage. From end to end of the cylinder channels are cut, into which are inserted lengthwise saw blades, similar to the blades of the common bucksaw, but thicker; these are held in their places by double wedges in the grooves, or pins into the body of the wood, and project a little more than the depth of the teeth. As many as eight or ten of these saw-blades may be inserted at intervals round the cylinder—they, of course, project equally. The saw-blades are made movable; the teeth of one should be opposite the vacancies of the next; they can be taken out and sharpened as occasion requires. They are filed in the ordinary way. The blades, where wedged into the wood, should be covered with a good varnish, or be well painted to prevent rusting. This cylinder is made to revolve rapidly, and the roots are presented to it in any convenient manner, and are thus reduced to pulp, which is received below.

A similar cylinder may be made with thick steel blades, inserted in the same manner, and ground to a thick edge, which is sharpened as occasion may require, by the removal and grinding of the blades.

Another form of cylinder is made by a number of circular saws punched out of iron plates (teeth and all are punched at one motion); there is a central hole with a key slot. A number of these are put on a turned iron axle, with intermediate smooth plates of iron of a less size, so as to allow of the teeth being set broadways like a saw, and this, though an expensive, is a very efficient tool, particularly if the saws are made of steel of the best quality. All the saws and plates are held firm on the centre by a key, or by two keys, wedge-shaped, going from end to end, along a flat place made in the spindle.

Another plan is the insertion of a series of flat cutters, like plane irons, round the circumference of a wheel, and which are set so as to shave or scrape the roots when presented to them, endwise, into the thinnest possible shavings.

Any of these plans, well carried out, will produce a pulp which can be pressed at once. The roots are presented to the grater (let it be in what form it may) by either hand power or machinery. The grater or rasp should revolve with great rapidity, and the resulting pulp be like soft wet snow, the finer the better.

PRESSING.

The pulp, when ground, may be pressed in any of the following ways:—

1st. In cloth or linen bags, with a powerful screw press. In this case the bags or cloths have only a small quantity of the pulp put in each. Cloths are best; they are put in frames to be filled, and the ends of the cloths folded in. Each parcel of pulp thus made, which should not be more than two inches thick, is then put on a board, or iron plate, and gradually piled up one on the other, under the press, until the limit of the screw is reached; the pressure of the screw is then brought to bear evenly through the medium of a thick cap-piece, made by crossing strong two-inch oak plank, well screwed together. The pile of filled cloths stands in a tray under the screw to receive the juice, which is then carried off to the boilers.

A second method of pressing is similar to the above, but the press, instead of a screw, or series of screws, is made of the ordinary hydraulic press, and is, of course, more efficient, although very expensive.

Many other presses of this description will naturally suggest themselves to the mechanical mind, and will be used where necessity, or limited pecuniary means, prevent the use of more expensive methods.

DEFECATING THE JUICE.

This has been partly described in a former article, but as other processes are mentioned more at length, it is believed that a repetition will be beneficial, and sure to fix the matter in the mind of the reader.

When the juice is obtained from the press, it runs, as quickly as possible, into the boilers, being strained from all traces of root and pulp. Hydrate of lime (hereafter described) is added to a greater or less amount, according to the process to be used, and the liquor in the boiler is brought to from 165° to 168° of heat (Fahrenheit's scale). A thick scum then rises, and when it has risen sufficiently, the liquor is brought so nearly to a boil as not to break the head of scum, which is then removed, and the liquor, now clear, and out slightly coloured, is boiled until sufficiently evaporated, when it is ready for the

SUBSEQUENT PROCESSES.

These are several in number, according to the product required. For the farmer or small manufacturer, who has not the necessary skill for the refining process, it should be merely evaporated until it is of sufficient density not to ferment—just such as ordinary treacle or molasses—and this is then fit to barrel up and take off to the refinery, where it will bear a price in accordance with the care with which the roots have been grown, and the subsequent processes conducted. The most important point to guard against is burning or browning the liquor, and for this purpose, where it can be had, and the work is to be constructed on a manufacturing scale, a boiler specially constructed is required.

THE BOILER.

This should be made thus: The bottom should be conical, made double, of boiler iron, well stayed and strengthened so as to bear a heavy pressure of steam between the two skins, to do the best possible work. Steam is the only heat which should be used. There must be an inlet for the steam, and an outlet back into the steam boiler for the condensed water to flow back into the boiler. The iron part must be made by a boiler-maker, and be calculated to bear the full pressure of ordinary high pressure steam. The top, or upper portion of the boiler, may be made of wood; an ordinary hooped wooden curb will be sufficient, and is perhaps better than if made of iron. There must be what is called open steam attached to the boiler for special occasions; this is merely an iron pipe of an inch in diameter, connected with the steam boiler, and going to or near the lower part of the conical bottom. The steam is shut off and let on by a tap at the upper end of the wooden curb, and within reach of the workman's hand. There should be a pipe and tap fitted to the point of the conical bottom of the double part, to enable the operator to draw off sediment and to empty the boiler as required. There must be proper receivers under the boiler suitable to hold the several kinds of substances which may be withdrawn from it.

In addition to the open steam, the refiner or large manufacturer will require a special coil of pipes connected with the carbonic acid arrangement which will be described further on.

THE FARMER'S BOILER

This need not be an elaborate affair. The same boiler and evaporators which he uses for maple sugar would be quite sufficient to bring the sap down to the syrup which is proposed to form the staple of his manufacture. The Americans have many plans for boilers adapted to the purpose of reducing the juice of the sorghum and maple sap. These all do well, and are so extensively advertised in American publications that any person wanting such can obtain them ready-made without difficulty. In a former number of the CANADA FARMER, under the head of "Maple Sugar Making," this subject has been fully treated, and to those articles (Vol. 1, p. 39, also Vol. 4, p. 49,) the reader is referred. The great object to be attained is evaporation without colour or burning. Any means which will give this end is what is required.

In future numbers, the consideration of this important subject will be resumed. New works have lately been published, giving the latest discoveries of the continental manufacturers, and the information which those works contain will in due time be transferred to the columns of the CANADA FARMER.

No. VII.

PROFITS OF BEET ROOT GROWING.

On this subject there will doubtless be endless disputes and cavillings. Some of the best agriculturists in the Province maintain that turnips cannot be grown to profit *as a crop*, on account of the labour necessary, and that were it not for the destruction of weeds, the rotation and manure which that crop gives, the farmer would be better without it.

Others, particularly our friends round Guelph, rely altogether on their turnip crop as the means of fattening cattle, and it thus becomes the *cash crop*, and takes the place of fall wheat, which is now a failure in that district. Now as the usual mode of reckoning of the farmers in the County of Wellington is, that besides the turnips required for stock sheep and growing stock through the winter, they can fatten one good beast (ox or cow) for each acre of turnips grown, and as no man need expect to make more than from 30 to 35 dollars on the animal over and above the original cost (or worth of it), when put in stall, we may safely reckon the produce of an acre of the best turnips, cost what it may to grow, to be from $30 to $35, and that it can never produce more than $40 per acre gross,—out of which the cost of labour in growing and attendance on the cattle has to be deducted.

An acre of beets will cost no more to produce than an acre of turnips, the culture is the same, and also the manure and labour of sowing, hoeing, and harvesting the crop; the singling the beets may be a little more troublesome, but the advantages in not suffering from fly and the quick growth of the plant to smother weeds, far more than make up for that difference. Beets may be sown later and harvested sooner than turnips.

If ten tons of properly selected sugar beets can be raised on an acre, they are worth, delivered at the factory (say within three miles), four dollars per ton, or $40 per acre.

An acre of turnips as above produces from $30 to $40 per acre in cattle feeding.

An acre of fall wheat at 30 bushels per acre (and who would not be glad to be sure of that amount of crop), at $1 25 per bushel will produce $37 50.

An acre of barley, at 40 bushels per acre, and at 80 cents, will produce $32 00.

So that an acre of sugar beets, taking every contingency into account, is worth as much, to say the least, as an ordinary crop of any other farm produce in Canada. And in addition, if the farmer works the crop up into syrup, he may be certain of realizing fully as much more, or $80 per acre, exclusive of the wear and tear of sugar utensils, fuel, and labour. The refuse is supposed to be fed on the farm, and this worked into manure, and the value of it is not taken into account in either case.

Now it appears from the returns of the Patent Office at Washington ("Report of the Commissioners of Agriculture, 1868"), that the average production of a crop of cotton in the United States, is only equivalent to $56 25-100; the proceeds from an acre of tobacco to $60; and on both these crops the labour is immense, and, as they say, never ending.

These amounts are given in American currency at a time when fully one-third, if not more, must be deducted to bring them down to a gold standard, exclusive too of extra taxation, and these deductions leave an acre of sugar beets (at $40) quite equal to a crop of the great staples of the South, and if worked up by the farmer into concentrated syrup, of greater value than either.

But the advantages of the beet root crop, if raised as proposed and turned into syrup, must not be reckoned merely as an *assistant*, a supplementary crop; it can be pushed to any reasonable extent, and will really nearly if not quite double the cash proceeds of the farm by its returns, exclusive of the increase which will take place in the wheat and other grain crops from the manure afforded, and the improved tillage which is sure to result from increase of means and returns to the farmer on his average year's work. I reckon in the foregoing that the beet root crop will take as many hoeings as the turnip crop, but if managed with judgment there are strong reasons to hope that at least half the hoeing may be dispensed with.

To raise beets to the best advantage for sugar they must not be sown till well on to the middle of June, and they will be ready for the manufactory by the middle of September, and may be begun within the first week of that month; so that if the ground is properly prepared by early spring ploughing, and then by several harrowings and rollings, sufficient to keep down and kill the weeds, all the surface weeds having vegetated, the beets run ahead of those that survive, and from the short time they occupy the ground, the weeds have not time to go to seed. This is putting out of sight all the advantages of horse-hoeing, which are considered to be equal, whether in the turnip or beet crop.

A miss crop of turnips, from fly or drought, is a common occurrence; indeed, what with missed spaces and general troubles from this cause, turnips are always a precarious crop. Beets, if the seed is good, never miss; the seed does not perish either from wet or drought, and the root has been called "the root of scarcity," because when all else failed the beet succeeded; hence, whatever little extra trouble there is in the growth of it, when compared with turnips, it is amply made up by its unfailing certainty.

Then again, when it is once a plant of general growth, the cash return of forty dollars per acre can be had from the manufactory, long before the turnip crop can be realized on, so that the advantages of the beet over the turnip crop are too manifest to be disputed.

In all this, too, we must not forget the thorough manuring the ground gets from the leaves, which are always cut off in the fields, and ploughed under before winter, thus leaving the land in the best possible condition for either barley, or spring wheat, or oats.

These assertions are not speculative, or given without ample experience. In countries where beet sugar is grown, as the growth of beet increases, the number of cattle increases; the manure from the cattle is more than can be obtained in any ordinary farming, without the growth of that root, unless expensive artificial manures are used. So the grain crops increase, and the general fertility of the land is maintained and added to, whilst from the greater amount of hoed crops and partial fallowing, by harrowings, and cultivatings, the weeds diminish year after year, until the land becomes clean, instead of, as most of our Canadian farms now are, a mass of foul weeds only to be kept down by the entire loss of crop one year out of four by naked fallows, the result of which, however necessary since the failure of our wheat crop, has been poverty to the farmer, and a gradual yet surely increasing want of fertility in the farm.

The beet root cake is better food for cattle than the original root. It can be stored for future use, and it is the best possible food for milk cows, never flavouring or injuring the butter.

Those who live to see it, will marvel at the regeneration which the cultivation of the sugar beet will produce in Canadian farming. Come it must and will.

VECTIS.

A Backwoods Farm.

SOWING SPRING WHEAT.

Our sub-contractor failed in his contract to have the whole one hundred acres ready for spring wheat the following year, and although most of it was logged and partially burnt, yet the fencing was incomplete. Some disagreement among themselves caused this, and we only had about sixty acres of spring wheat sowed by the 20th May following. We sowed one bushel and one peck an acre, and it would have been plenty, but from the time it was sowed, after one heavy rain, we had not one shower until the first week in July, and about that time we had a few showers, just enough to save the wheat from destruction. I think we had one slight shower about the middle or end of June, but very little. The wheat that lay on or near the surface did not vegetate until this shower fell, and consequently that portion of the seed that had been better buried was up quite high. The effect of this was that at harvest, which was delayed until September 20th, we were obliged to cut the unripe wheat to save the dead ripe portion from being lost by shelling out. This was a great drawback, as part of each field would be quite ready to haul, whilst other portions would be quite green and damp. About this time also, as is usually the case, some heavy showers fell, and as the equinox approached, wet and cold weather set in, and our land being cradle-knolly, and the water lying in the hollows, the waggon wheels cut so deeply into the sod that it seemed utterly impossible to haul off the wheat to the barn. The load rolled and rocked about like a ship in a gale of wind, but ultimately all was secured and hauled home to the barn.

BOARD ROOFS.

Here more trouble arose. When we built the barn, we, of course, calculated to cover it with shingles, but no shingles could be obtained, and as lumber was plentiful from a neighbouring saw-mill, we concluded to use boards instead. This would have been sufficiently tight to save the crop, but the lumber was cut, as almost all lumber now is, with a large circular saw, and one not in the best of order, and consequently it was covered with circular marks made by the saw where some one or more of the teeth projected beyond its fellows. These marks or channels, as they ran in a circular direction early across the boards, afforded a perfect succession of little drains to convey the water from the centre to the outside of each board, and consequently under the batten that covered the joint between each two boards, and so directly through the track thus formed on to the wheat below. Our wheat was badly injured by this, and we had at once to procure shingles at any cost, pull off the boards, and lay the shingles as quickly as possible—and not until this was done was our crop safe.

We would have threshed it out, but it was too damp and wet from the unripe straw that was mixed with it. This trouble somewhat daunted us, but we were made of stuff too enduring to "lie down and die" under any difficulty that could be surmounted.

BUILDING THE BARN.

This was rather a serious undertaking, but it had to be done. We contracted with a framer to do the carpenter work—we only undertaking to get out the timber in the woods and haul it, find hands to raise the frame, and also haul the lumber wanted, and find nails. I mentioned a neighbouring sawmill as being conveniently situated. The preceding sleighing months had been taken advantage of to haul 1,000 logs to the mill to furnish the lumber requisite for the barn and stables. We got it sawn on shares, that is, every log that was cut and yielded say two hundred feet of lumber, was divided, and one hundred was for us, and one hundred for the mill owner. This worked well, and to our advantage. In clearing the land, we had to remove the timber at any rate, and we had more labour to spare during the winter than money. We thus got plenty of lumber on easy terms.

About the 1st of August, when our first

and greatest hurry was over, we had the timber all framed, and a raising day was appointed. I was very averse to "bees," but always made a comparative exception in favour of raisings. Here individual labour cannot get along; united strength is requisite to get the heavy timbers up, and as we had to go to our neighbours' raisings on the same principle, and from the same cause, we determined to have a "bee" ourselves. All was prepared and a day appointed, but before we could get the frame together we had to build a foundation, and set in the cedar posts. I would have had the posts at least six feet high, so that a cattle stable could have been formed underneath, but the framer exclaimed that such a barn was never seen, and that it must surely fall down broadside. It "might," he said, be well enough to build a barn on a stone foundation so high, or perhaps higher, or against a side hill, but to raise a barn so large as 100 feet long by 40 wide, and 20 feet high to the plates, built on level land, to be "gogged" up on cedar posts six feet above the earth, was just folly, as it would surely fall down. I was utterly unconvinced by these statements, but at length yielded, and the barn was raised on foundation posts, four feet above the earth—I would not give in to any lower—and this was pronounced very bad policy by many who were consulted. Many reasons were given, but I did not believe one in ten to be good, and I am only sorry I did not insist against all comers, and raise the barn on six feet posts, under the sills. The advantages are so many. We will suppose you do *not* make a cattle-shed or stable underneath the whole barn, as it would, of course, entail the necessity of the floors in the mows being strong enough to support the barn full of grain, but you can use the large cavity under the barn floors; and our barn had two floors. And when the team is delivering a load of wheat sheaves it is very much easier to pitch those sheaves off the load down six feet into the mow below the barn floor, than it would be to pitch them six feet above it; and your barn, moreover, is one-third larger with each mow six feet below the level, and you can load through the floor in a waggon backed in underneath so easily. Then the sills never rot, as the manure never accumulates against them. Rats and mice cannot so well do mischief, and when unloading hay with a horse fork you have an infinite advantage in pitching down hill. There is literally no disadvantage about it, with one exception, and that is the hauling up an inclined plane to reach the floor, and here again the difficulty is small, as I have seen several large byres at Messrs. Gooderham & Worts' cattle feeding establishment in Toronto, where all the hay is hauled from choice up an inclined plane, and into the immense building above the cattle, so as to avoid as much as possible all pitching upward. Here the waggons absolutely pass over the cattle stalls. And where people are feeding a thousand head of cattle, as is the case in the byres above mentioned, saving of labour of men at the slight cost of constructing the inclined plane, and an additional pull for the team when hauling in the grass and hay, is a great advantage.

Farmers do not readily alter their ancient course. As others about them do and have done, so they do and continue to do. But the progress of the world is forward, and every one's mind should be readily open to conviction and trial, and an attempt to adapt other people's increasing experience to their own wants and case, rather than condemn wholesale what persons more ingenious than themselves have used. If manufacturers were to plump themselves down as farmers usually do, and say certain things will not answer because they have not been in the habit of using them, they would soon be left far behind in the race of life.

RAISING THE BARN.

In the course of getting ready for raising, my mind was still firmly bent on dispensing with a bee. I had procured a large and strong rope, and made three or four heavy pulley blocks, the use of which I was thoroughly acquainted with. I determined to try and pull up the heavy bents and timber by mechanical force, in preference to human aid. But I found such an active opposition to my plan from the carpenter and others interested, who knew nothing about the use of such means, that I abandoned as useless the contending any more about it, and the bee was accordingly summoned, and an excellent attendance of smart young men was obtained. There were forty asked; thirty-five attended. The frame was unusually heavy and large, the barn being 100 by 40 feet. with 20 feet posts, and consequently the bents were very heavy.

The first thing done was to choose two captains, one for each side. This was soon done, and they proceeded to select each a man from the mass for his own side, turn and turn about. As each name was called, the owner ran to join his party, and when those not chosen were left, they naturally were made to feel the small value set on them. Finally, all were selected but one Dutch lad, and much fun and merriment was held over him, as each party insisted on having him. So they tossed up a cent, head to win, and he fell to my party by lot.

Never having been at a raising before, I was much pleased at the wonderful activity of the second generation of Canadians. All nations were represented—English, Irish, Scotch, French, Dutch, Germans, and Prussians—and it would be invidious to state which were the best or more active, when all were running about like cats on the building, driving in pins, where nothing but twelve inches of lumber was to stand on; standing on the plates when only balanced on the points of the tenons, vieing with each other in the determination of each side to outdo the other in feats of daring activity on the building, as also in those of heavy lifts and carrying the ends of large pieces of timber.

Our bee of about 35 hands raised the building entirely in two and a half hours, during which time had our stolid Englishmen, who have been accustomed to move as if a hundred pounds were tied to their feet, seen the "second growth" Canadians at their work, they would have fully appreciated the activity and power of the young natives. Young Canadians from the agricultural districts are, physically speaking, as fine a race of men as are to be found—tall, spare, active and wiry. They will make their mark hand to hand with any nation on the face of the globe.

All hands then adjourned to wash, and to supper, after which all sorts of curious games completed the evening's amusement. If I could remember the German, French and Prussian it would be amusing, but I cannot. During the raising a large gathering of young women had taken place, and all were determined to give the hater of bees (myself) some idea of how an evening, after work was done, should be spent. It was about twelve o'clock before the dancing and games broke up, and nothing stronger than tea and coffee was produced to drink; all passed off pleasantly enough. The great bane of bees is whisky—avoid that, and they no doubt are very serviceable to some people occasionally, but I never liked them as a rule, when it was possible to avoid having them.

YIELD OF THE CROP OF WHEAT.

I had almost forgotten to mention the entomological fact that this year the wheat ears were covered with thousands on thousands of the blue aphis. Some of the ears were entirely hidden. The insects nearly resembled lice. We were quite alarmed for our crop. Our outlay had been large—nearly sixty acres of wheat sowing—and if this failed, we were in a bad position. However, all was not lost, as after threshing we had about 16 bushels to the acre; and had we had an entire absence of these insects, I am convinced we should have harvested more than 32 bushels per acre. The sample was excellent, and we ultimately sold all for seed at about $1 per bushel. In those days wheat was 65 cents per bushel for milling purposes.

HARVESTING TURNIPS.

We had an excellent crop of purple-top Swede turnips this year, and as the early part of November found us with the turnips yet in the ground, as a matter of course, occasional frosts and some slight falls of snow made pulling them a very uncomfortable sort of work. We had a man

working for us who offered to contract for the lot by the job—to take up the turnips, cut off the greens, and cart to the barn—we agreeing to find the necessary tools. In accordance with this arrangement, we provided a sharp steel hoe or two, and a sort of prong grapnel, shaped like a pitchfork, but having the tines of the fork about three inches apart, and bent close to the ferule, at an angle of 90 degrees to the handle—or rather inside this, say something within a right angle. With this machine he and his boy went to the field. He himself, with the sharp hoe, sheared off all the green close to the turnip smooth and clean, sometimes, indeed, rather too close. The boy followed, and by pecking the bent fork under each turnip, and pulling slightly backward, he pulled up the turnips with great rapidity. His father, however, beat him in cutting off the green tops.

When pecking out the turnips, the son first went lengthwise of the piece, and pecked up about one yard wide all through, leaving about three feet on one side untouched. On reaching the end he turned broadside, facing the piece left, and as each turnip was pulled up, he pitched it on towards the piece he had previously done. When he reached the end, he again picked up and jerked in towards the row thus formed, about three feet on the other side. This, when repeated, left the turnips in rows about nine feet from centre to centre. When they came to hauling, they drove the waggon down close to the row thus formed, and, with ordinary steel forks, loaded the waggon, generally with two turnips each time on the fork, and a most rapid and excellent plan it proved.

MAKING POTASH.

Our next care was to protect and collect the ashes out of which to manufacture potash.

After our great burn, of nearly 150 acres, there were of course vast quantities of ashes, exposed to the weather; and as soon as the heat of the burning brush had subsided all hands turned to, and raked the ashes into small conical heaps, usually containing about two bushels each.

This must be very carefully done, and also attended to before the ashes are cold, for unless they are raked before the heat is extinguished it is quite impossible to avoid drawing together some earthy and vegetable matter with them, which greatly injures the quality.

The weather looked unsettled; we therefore hurried our operations as much as possible, and all the ashes were raked together before any rain fell, and the heat of the unextinguished coals consumed the remains of any unburnt wood or charcoal.

We had at that time no place to store the ashes, and therefore had to construct an ash shanty, that is, to build a square log house, about 15 feet square, with a floor of logs to prevent the ashes being injured by the damp from the earth, and also a roof of a temporary kind, to prevent any very heavy rains from leaching the ashes from the top, thereby spoiling them. Our two teams, well attended to, soon hauled 700 bushels of ashes, and we were now ready to commence potash making.

We had previously received five potash kettles from Toronto; four were set in an arch, and one was used as a reservoir for lye. We built our leaches in the ordinary way, but took the precaution of so constructing the bottom that a complete filter of lime and straw caused the lye to be as free from impurities as possible, and as fine as wine, it was so perfectly clear. Unless this is done the quality of the potash will be inferior.

Having taken the precaution of ascertaining the fact that plenty of water was to be had on the spot selected, before locating our potash works, a pump was speedily made, and a well dug. Everything worked well, and we soon had two barrels of black salts, that is, crude uncalcined potash; and now came the melting off.

This is the climax of potash making. If the work up to this time has not been well done, the potash will not melt, and seconds or thirds in quality are the certain result. If, on the contrary, all has been carefully done, and all extraneous matter carefully kept out of the lye, nine times out of ten the melt will be easy. I have often seen people, who have neglected these points, fire away for hours to effect a melt, and actually honeycomb their kettle in their endeavours to accomplish this; and after all, when the potash was dipped out and cooled, it was only seconds or thirds. And all this extra trouble, and often the loss of a kettle, was caused by the presence of extraneous matter amongst the lye or ashes. Before we finally gave up potash making we had constructed a filter of lime through which all the lye was passed on its way to the kettle, and thus all difficulty of a good melt was avoided.

"Potash boiling," as it must be conducted nearly all night as well as day, is quite a jubilee time. In fine nights the brilliant fire attracts all the neighbours round, and songs and stories are plentiful and amusing. Many a good story I could tell that was related to me whilst boiling potash; but I must not trespass on the space devoted to agricultural matter by such narratives. I may perhaps be allowed to describe one or two adventures in which I was personally engaged.

COON HUNTING.

We had planted about four acres of corn, and the locality happened to be near the potash works. Raccoons were very plentiful and committed great ravages amongst our best roasting ears. Night after night we hunted them without dogs, fearing the mischief the dogs would do, but although we saw by the destruction in the morning that there must be several coons engaged, we could not catch one, they all seemed to make for one spot, and there we lost them. We procured good coon dogs and put them on the scent, but we still lost the game about one locality. One morning after the last unsuccessful hunt, I carefully examined the ground and all the old stubs about there, and was certain signs of "Coon" having ascended one large old elm tree, partly dead. I at once sent for some axes, and in half an hour the giant of the forest was laid low. It proved quite hollow near the butt, with a slight hollow all the way to the first large branches. I had a thorough-bred English bull-terrier dog, and I told him to jump on the stump and from thence into the hollow below, and of all the fusses you ever heard, that which issued from the stump's interior was the greatest. I pulled out the dog by the tail, and with him a fine large raccoon, and as he was splendid pluck and his blood was well up, next time I pulled him out with a coon in his jaws; he again jumped in, until we had eleven large and small raccoons. They fought hard, and my dog was considerably defaced in countenance, but no amount of punishment would daunt him. He never refused, if allowed again to go in, or gave bark until he had fastened on a raccoon, when we twitched him out by the ever whisking tail, coon and all. Of course a blow finished each of the poor wretches the moment they appeared in the dog's mouth. Our corn was safe from further molestation for that season.

BEAR HUNTING.

I recollect a desperate fright one of our men got about that time from a bear. Bruin thought corn good for him also. We had previously noticed some marks of a bear visiting the field. We were going our rounds one fine evening, and heard a rail fall off the fence. Of course we were instantly aware that some animal, tame or wild, had leaped into the corn field, and we at once suspected that we had arrived just in time to catch the bear in the act. I determined to go home for a rifle, and as we always carried a gun when prowling round the clearings at evening, anticipating some small game, I gave it to my man to hold, bidding him stay where he was and watch whilst I went for the rifle. He told me he had dropped a ball into one barrel, when loading the other with small shot before leaving the house; but as we had no more ammunition with us, I prefered getting another gun and some more powder and ball

My man was impatient in my absence, and consequently crept along the fence, until he judged he was about opposite the place where we heard the rail fall. Not a sound was heard, and he concluded to jump over the fence where the fallen rail lay and see; possibly we were both mistaken, and no animal whatever was there. He cocked both barrels, and carefully got on the fence. On the top he stopped and looked round, but could see nothing, save a large butt log of hemlock a few yards within the corn. He jumped fearlessly down, and the next moment up rose from behind the log, a monstrous bear, within ten feet of him. The bear rose on his hind legs with both fore paws hanging down, and for one moment looked stupidly at the man. He, poor fellow, who had only been a month in Canada, was terribly frightened, and yet the old poaching instinct prevailed. He was a capital shot, and instinctively raising the gun, he poured the contents of both barrels into the breast of the bear. In the smoke, not being able to see the effect of the shot, he threw down the gun and ran at a fearful pace towards the house. We met, and I was almost upset in endeavouring to stop him, and in fact did tear his jacket half off in holding on to him. His story was soon told, and when I had reassured him somewhat, we carefully and noiselessly returned to the seat of war, to find the largest bear I ever saw stone dead, with the contents of both barrels in his heart. This bear weighed nearly 600 lbs., and his hide was as large as a small cow's—a monstrous brute. But my man could never again be persuaded to go bear hunting.

Our potash paid well that season. The price was high and quality good, and before fall we boiled 22 barrels of No. 1, and two barrels of No. 2. Our gross return from this source alone was nearly $700. C.

Manure.—Lime.

All matters which, when applied to our soils, increase their fertility either by mechanical action, or by the supplying of certain elements of plant food, may fairly be considered under the head of "manures." Lime may, then, be termed a "calcareous manure," and is often of great benefit to our soils. By the discoveries of science, and the experience of practical men in the application of those discoveries, we have learned the great usefulness of lime as a manure.

Lime may be used in one of two states—*quick* or *slaked*. After limestones have been subjected for some time to the action of intense heat, they burn into a substance very caustic, and having an immense effect in causing the rapid decomposition of vegetable and animal bodies. This substance is *quick lime*. If water be applied to this quick lime, or if it be simply exposed to the air, it loses with more or less rapidity, according to which process be adopted, much of its caustic or burning power, and becomes "slaked" or "effete."

Now, the difference between quick and slaked lime is simply in rapidity of action upon substances with which they may be brought in contact—the former hastening decomposition much more rapidly than the latter. When the object of an application of this manure is to destroy and hasten the rotting of vegetable or animal matters, the quick lime has the best effect.

The action of lime is almost entirely mechanical. I say, almost entirely mechanical, for the fact that it does directly impart a certain element of food to plants is proved by chemical analyses, in that calcareous earth is found in the ashes of all vegetables, and in large quantities in those of wheat or clover. In 100 parts of wheat straw there are found 5 parts, and in wheat 3.35 parts of phosphate of lime. On the other hand, seeds planted in a pot of carbonate of lime will grow very feebly—in clear lime will die. Partly fill with garden mould and cover over with lime, and the plant will put down its roots through the lime to the mould, without throwing out branch rootlets until it arrive at the mould.

Great care must be used in the application of this manure, for it has different effects upon different soils and under different conditions. These conditions are so contrary, that while in many cases lime has been shown to have a most beneficial effect, in others its application has been fatal to all vegetable growth.

Lime has a strong affinity for acids. Its application to land, therefore, is beneficial in the following ways: It either renders harmless or converts into usefulness substances lodged in the soil, which, by their acidity, or, as named by farmers generally, "coldness," may be injurious to the growing crops, and thus prepares the land for the reception of seeds; it also greatly increases the rapidity of decomposition of putrescent manures, thus making them more easily available for the nourishment of vegetable life.

Lime has a great effect upon decayed and decaying vegetable matter, or, as we know it, "mould." There is no doubt that its application is of great benefit on "sour clays," for it corrects their acidity, and warms that sour mould which has been useless hitherto to plants, because it has required a quickening power to stimulate its further decomposition; also to land which has been at some time previous well dressed with "dung," without any addition of calcareous matter, by hastening decomposition; and rendering every particle of the rotting or putrescent manure available to the growing plant.

Now, in all arable lands, however much such may have been "run out," there still remains a large proportion of mould. Lime applied upon such land will quicken all that plant food which is lying dormant, and will greatly benefit the ensuing crop.

Let it be borne carefully in mind that lime has the effect of drawing out and placing within reach of the crop all the strength of the land, and it becomes evident that if its application be not followed by more manure, it will have the effect of rapidly exhausting the land.

It is useless and indeed injurious to lime too often, for if our land become surcharged with lime, having no putrescent matter to act upon, it will act too directly upon the crop itself, and greatly injure it.

Many farmers have, by advice, used lime on certain lands, and found that they have thus increased the yield of the ensuing crop. From this result they have deduced the truth that it is a grand manure, and have again and again applied it without further barnyard or green manure, to the utter exhaustion of the soil and the certain failure of future crops. Lime is a stimulant, correcting acidity and quickening the action of vegetable and animal manures, and like all stimulants, is good when used in moderation, but fatally exhaustive when taken in excess.

Low lands are immensely benefited by a free use of lime. Our low lands are generally rich with a deep black mould, but owing to their coldness, crops are not as heavy as the richness of the soil would lead us to hope. These soils contain in themselve all the component parts of the best soils, and are rich in decayed and decaying vegetable substances, but the manurial qualities in these lands are sluggish and inert, and will not freely give of their richness to the growing plant until stimulated by a free use of lime.

Heavy clays are often deficient in calcareous earths. In such lime is needed, and has often, too, the purely mechanical effect of making the soil more friable, and less subject to run together after rain.

Upon sandy land, which seldom contains much vegetable matter, lime has a contrary but good effect, attracting moisture from the atmosphere and giving more consistency to the sand, even as sand and lime become mortar.

"But if the soil consist of clay and sand," says Finlayson in his practical essays on agriculture, "containing animal or vegetable matter in a torpid state of decay, then lime would be preferable to dung. The state of the soil should therefore be minutely enquired into before lime is employed, and it should only be used to give effect to the inert substances with which it may be conjoined."

I cannot but think that a very free and liberal application of lime, ploughed in with our new lands when broken up, would increase their fertility wonderfully, for such lands are rich in vegetable matter, but are cold, inert in action, and acid. On such land I should use quick lime, as its effects are the more rapid, and it will destroy weeds and injurious plants.

The authority quoted above also says:—"There is this difference between the actions of lime and barnyard manure upon land: The former, being more stimulant and corrective, helps the farmer to an abundant crop at the expense of the land alone while the latter furnishes the land at once with fertilizing fluids, and will insure a good

crop on a place perfectly barren before and after the application of lime."

Lime is of great value to pasture land. So great an affinity has it for acids that it will greatly sweeten the herb. Indeed, if lime be spread upon a tuft of grass that has been refused by cattle, it will be found that they will soon detect the greater sweetness, and will eat it close down. When used for this purpose it must be slaked, for quick lime would be apt to burn the grass if used in any but very small quantities.

In the "General Report of Scotland" it is remarked that, "In the best cultivated counties, lime is now generally laid on finely pulverized land, while under a fallow or immediately after being sown with turnips. In the latter case the lime is uniformly mild—in the former quick lime, as pernicious (in a certain extent) to vegetation, may be beneficial in destroying weeds, and some experiments have been recorded, showing it to have a very powerful effect upon the fly. Sometimes mild lime is applied in the spring to land, and harrowed in with grass seeds, instead of being covered with a plough; and under this management a minute quantity has produced a striking and permanent improvement in some of the hill pastures of the south-eastern counties. Its effects are yet perspicuous, after the lapse of nearly half a century. In some places lime is spread on grass land a year or more before it is brought under the plough by which the pasture in the first instance, and the cultivated crops subsequently, are found to be greatly benefited. But in whatever manner this powerful stimulant is applied, the soil should never be afterwards exhausted by a succession of grain-bearing crops—a justly exploded practice which has reduced some naturally fertile tracts to a state of almost irredeemable sterility."

It is impossible to lay down any established rule for the regulation of the quantity of lime to be applied to land, for this must greatly vary according as the land is naturally calcareous or not, and also in proportion to the strength of the lime. It may suffice to say that in Great Britain the application, as made by her most eminent agriculturists, varies from thirty bushels to one hundred bushels per acre of slaked lime. Indeed, on some soils, as much as 400 bushels have been used per acre with great advantage.

Lime may be, and often is, used as a top-dressing on wheat, and the results of this proceeding have been various. I consider, however, that the lime will have a better effect, if applied to the land before it is shallow-ploughed the last time, or sown broadcast, and harrowed in with the wheat.

In conclusion, D. G. F. Macdonald says, in his excellent "Hints on Farming"—

"Lime, it would appear, may be always used with good effect under the following circumstances: 1. Directly upon mossy land, upon naked fallows, and in the spring, when preparing for turnips. 2. In composts in which the whole of the soluble salts of lime will have a tendency to be converted into gypsum by the action of the air; and consequently the benefits which result from a large application of the same, will be obtained by laying such composts upon the land. 3. It may be safely mixed at once with barnyard or other animal manures, though not in too large quantities. It may also prove a valuable admixture with guano, on which its action would ultimately be to fix, rather than expel, the ammonia. 4. Strewn sparingly over the young turnip plants, it is stated that it prevents the attack of the turnip-fly; and harrowed in when the ground is naked, if the quantity be considerable, slugs and wire-worms disappear rom its effects."

Many Canadian agriculturists have experimented with lime. Some have given us results in the CANADA FARMER. Let us have more experiences, and thus ventilate the subject, and give us the bounds within which we may steer, in order that we may improve the fertility of our lands, without exhausting our soil or ruining our crops.

C. E. W.

Ancaster.

Draining Wet Lands.

It is to be hoped that our farmers will be brought more and more each year to see for themselves that the proper drainage of their lands, wherever there is a field that retains water on its surface for any length of time, is one of the surest means of adding to the prosperity of the farmer.

We sometimes see a large meadow or field marred by a slash of wet soil through it, caused either by springs in that particular portion, or by the running down upon it and retention of water from springs higher up. This can often be easily remedied by making a good drain through this portion that will lead off the water to some lower level without the necessity of first percolating through and permeating with superabundant moisture, a large portion of the soil near the surface. Draining in this case ought to be resorted to, not so much for the sake of the land affected, as for the convenience of working the entire field, at all times when required, and so improving the entire farm.

There are sometimes to be found portions of land in the farm that are of good strong soil, but flat and cold, even when high up, retaining wet long after other portions of the field are ready for the seed. If such portions could be readily drained they would often prove as productive portions as any others in the field.

There are three modes of draining which may be employed, according to circumstances; namely, subsoiling, furrow-draining, and ditch or underdraining.

When a soil is underlaid by a compact impervious subsoil, all rainfall and melting snows will be retained near the surface until in process of time it can become evaporated. This compact subsoil acts like a water-tight floor. By subsoil ploughing we can work through and break up this undercrust, thus giving free egress downwards to the moisture that was previously retained near the surface, to the injury of the land and the plants growing on it. It will also help to prevent the injurious effects of drought in summer, as the breaking up of the hardpan enables the roots of the plants to draw up moisture from below, even when the surface is quite dry.

There is, however, a limit to the amount of usefulness of subsoiling. It has been ascertained in England that when a soil contains forty-three per cent. or more of alumina (clay) subsoil ploughing becomes useless, because, with so large a proportion of clay in the soil, it soon runs together again, and becomes as impervious as ever. In such a case, in the absence of underdraining, furrow draining must be resorted to. This is done by throwing the soil into high narrow ridges, ploughing back furrows, leaving the land so that surface water may readily run off into the furrows on either side before it can be absorbed into the soil. By leading these furrows into a ditch or underdrain, much of the surface water can be carried off the land, and the soil rendered much more workable and more amenable to the influence of the sun and the atmosphere.

Underdraining is, without doubt, the most certain and profitable method of improving all soils that are at all compact; but as few can afford the expense at the present high price of tiles and sufficiently skilled labour to accomplish the work satisfactorily, it is well to use other expedients, even if temporary, rather than continue to neglect the land.

Manure—Night Soil.

"The neglect of enlightened systems of agriculture precedes the decline and fall of empires. If the substances extracted from the land are not returned to it in the form of manure, the consequences must ultimately be disastrous to those guilty of such neglect. The sewers of ancient Rome have been highly spoken of, but at the same time it must be remembered that the *cloaca maxima* engulphed for centuries matters that would have greatly conduced to the prosperity of the Roman peasant, could he have obtained them. The Tiber became silted up, and when the exhausted fields of Italy failed to produce sufficient quantities of corn for the enormous population of Rome, and of other cities, recourse was had to Sardinia, Sicily and Africa, which also in the course of time became impoverished. The inundations of the Nile keep up the fertility of Egypt. The inhabitants of China and

Japan have contrived to maintain the fertility of their soil for thousands of years, mainly owing to the careful manner in which they collect and apply human excreta and other offal, which are justly regarded by them as valuable manures."

Chemical analysis shows us that all the elements which are necessary to the growth and life of plants are found in more or less abundance, not only in the various formations which are seen in a human body, but in great abundance in those substances which, after performing their necessary duties in strengthening and holding together the organization of man, are cast forth.

These substances expelled from the body are looked upon as base and loathsome, and are banished from all future use. Not only is thus wasted the most fertilizing agent that can be applied for the benefit of plant life, but the receptacles in which such are allowed to accumulate become noisome cesspools, from which emanate rank smells and poisoned air, and by which are bred disease and pestilence.

The quantity of valuable manure that the farmer may obtain from night-soil is not inconsiderable. The liquid and solid excrements of one man amount to 1½ pounds daily. This tells up to a large quantity in one year, and as this is the richest and strongest of manures, it has been computed that one man will, in a year, make sufficient, when mixed with other matter, to thoroughly enrich an acre of land, or to grow sufficient wheat for his own use.

Professor Liebig says in his Chemistry of Agriculture:—

"In respect to the quantity of nitrogen contained in excrements, 100 parts of the urine of a healthy man are equal to 1,300 parts of the fresh dung of a horse, and to 600 parts of that of a cow. Hence it is evident that it would be of much importance to agriculture if none of the human urine were lost. The powerful effect of urine as a manure is well known in Flanders, but human excrements are considered invaluable by the Chinese, who are the oldest agricultural people we know. Indeed, so much value is attached to the influence of human excrements by this people, that the laws of the State forbid that any of them should be thrown away, and reserves are placed in every house, in which they are collected with the greatest care. No other kind of manure is used for their cornfields."

The Chinese are, without doubt, the most admirable gardeners in the world. They use but very few horses in their agriculture, nearly all their work, owing to the density of the population, being done by hand. They place but little value on bestial manures, for they almost entirely enrich their cornfields with night soil. Of such value do they consider this latter, that the work of collecting and removing it employs an immense number of persons at all times and in all seasons.

The following tabular statements, the one of an analysis of human excrement by Berzelius, the other an analysis of guano by Voelcker, placed side by side, will give your readers some idea of the relative values of the two as manures:—

ANALYSIS OF HUMAN EXCREMENT, BY BERZELIUS.		ANALYSIS OF GUANO, BY VOELCKER.	
Carbonate of soda	3.5		
Muriate of soda	4.0		
Sulphate of soda	2.0		
Phosphate of magnesia	2.0		
Phosphate of lime	4.0		
URINE, 1,000 PARTS.			
Water	933.00	Oxalate of lime	7.0
Urea	30.10	Phosphate of lime	14.3
Salts of ammonia with some animal matter	18.46	Clay and sand	4.7
		Animal matter with small quantity of salts and water	32.8
Sulphate of potash	3.71	Sulphate of potash	5.5
Sulphate of soda	3.16	Sulphate of soda	3.8
Phosphate of soda	2.94	Phosphate of ammonia	6.0
" ammonia	1.65	" of magnesia	2.6
Muriate of soda, (common salt)	4.45	Oxalate of ammonia	10.6
Muriate of ammonia	1.50	Urate " "	9.0
Earthy matter, lime and silica	1.06	Muriate " "	4.2
	1,000.00		100.0

How nearly then do guano and night soil resemble one another, each containing in great quantity those essential constituents of plant life which are most liable to be absent from our soils.

Of what glaring inconsistency are we then guilty! We throw away that which costs us nothing, and is yet so valuable, and at the same time incur an immense expense in the importation of guano from countries some thousands of miles distant.

The question now arises, how are we to collect and apply this valuable manure?

The best practical solution of this problem is furnished by the "dry earth system," which has repeatedly been explained and advocated in these columns. There is no mystery nor difficulty in carrying out the plan. The ordinary appliances of the farm are sufficient. All that is required is a store of finely sifted dry earth, to be kept under cover. A small supply of this material should be at hand in the privy. The receptacle for the evacuations should have a layer of the same at the bottom, and after each time of using, a pint or so of the dry earth should be thrown in to cover the fresh deposit. This will absorb the moisture, deodorize the ordure, and form a mass of the richest manure that can be obtained.

The same system may be carried out in the sick room, and will be found of great benefit to invalids, so perfect is the deodorizing power of the earth, and so simple is the working of the plan. For the general use of the house, commodes are now built, which combine simplicity of structure with a handsome finish, and are thus made to suit the closet in which the apparatus is permanently placed.

Whilst in England lately, I visited several earth closets, amongst which was one used by fourteen persons daily, and can bear my testimony to the perfect freedom from all disagreeable odours in each case. In every case the owners spoke in the highest terms of the satisfaction which had been afforded them by the adoption of "the earth closet system."

C. E. W.

Ancaster.

Spring Wheat after Winter-killed Fall Wheat.

Some time since, while travelling in the West, I met with a most intelligent gentleman, from whom I had previously received many useful practical lessons and hints on various branches of manufacture and agriculture. Amongst others, he related his experience of the exhaustive effects of young winter wheat. He had found that, generally speaking, land on which winter wheat had been grown, and done well in the fall, but been badly winter-killed, failed to produce a good crop of spring wheat in the following spring; and his theory was that the wheat required a peculiar kind of nourishment when young, which it had found in the fall and duly appropriated to its use, in accordance with the ordinarily received opinion on the subject; that the young spring wheat grown on the same land the following spring required a precisely similar quantity and quality of nutriment, which, as a previous demand had been made in the fall, the land failed to supply; and hence the usual failure to grow spring wheat after winter-killed fall wheat, as such a course was equivalent to growing two crops in one year.

But, if barley had been sown in the spring instead of spring wheat, a bountiful crop has almost always followed. Many people can vouch for this fact, but very few, probably, thought out the cause, as my intelligent friend had done.

It certainly is a point worth consideration, and the opinion here given of the process and result appear reasonable, especially when we consider that an exactly similar consequence arises when wheat has been destroyed by the midge. In this latter case, the land has, we will suppose, produced a bountiful crop of Soules wheat, as has thousands of times been the case—say to the extent of thirty or forty bushels per acre. Just as the wheat is in flower, the midge in countless numbers strikes the whole, and the crop is not worth threshing, nor even the cost of harvesting. Now, all the constituents that ever had been taken from the ground to form this crop had been returned to it, as nothing has been removed; and we will say the straw is at once ploughed under, as I have often seen it done, by means of a chain and weight dragging down the standing crop into the furrow—

the chain and weight holding it down until the furrow slice covered it almost entirely under.

When green wheat is ploughed under in this manner, rapid decay takes place, and the whole of the previous wheat crop is returned to the soil again; and we will suppose a second crop of wheat sown the same year, thus virtually sowing wheat after wheat without cessation. We all know there would be no second crop of thirty or forty bushels per acre, even if no midge took it; we all feel quite sure of that, and the same train of reasoning as my friend carried out may explain the result, namely, the wheat was grown, and had abstracted the nutriment required to produce a crop. The midge destroyed it, and hence no more could be again grown until the balance was restored by a rotation of other crops or manure.

So it is with spring wheat following winter killed wheat. The balance of fertility has been disturbed, and a crop has been grown, a young one it is true, but still such a one as required for its support what the land was capable of finding, but which it could not find for both fall and spring wheat, even where fall wheat had been ploughed under.

C.

As only one item in the cost of a war, it is calculated that the farming classes in France have already lost £170,000,000.

M. Marix has taken, in France, a patent for the application of fluosilicic acid for the purifying of beetroot and other saccharine juices. The saccharine juices are first diluted with a sufficient quantity of water to ake away the viscosity of these fluids; sufficient fluosilicic acid is then added to precipitate all the potassium salts present; and next, chalk is added to saturate any excess of the acid. The fluid is then filtered in order to obtain a clear liquid, and this is afterwards treated in the usual manner.

SALTING WHEAT GROUND.—In answer to a question about applying salt on wheat ground, Prof. Whitney says:—"No reliance can be placed beforehand on the action of salt in any given case, or for any given crop, for the reason that its operation may depend upon any of a dozen different causes. If there is a deficiency of soda in the soil, salt may supply it; the decomposition of the salt may, by liberating one of its components, chlorine, hasten the germination of the seed, this element being believed to have this effect specifically, or the salt dissolving the soil may, as is known to be frequently the case, help the solution of insoluble phosphates. The ash of wheat kernels contains nearly 4 per cent. of soda, the ash of the straw nearly 2½ per cent., and that of the chaff more than 1¾ per cent. It is likely, therefore, that salt will prove beneficial to wheat, but this can only be found by actually applying it to a piece of ground and watching the result."

Stock Department.

Improving our Horses.

Notwithstanding all that has been done of late years by enterprising individuals towards inducing our farmers to use a heavier and better class of stallions as breeders, by importing Clydesdales and Suffolks at great expense, there are still too many light, weedy, worthless colts to be found growing up throughout the country. Too many of our farmers totally neglect or overlook the fact that there is a principle involved in breeding every kind of stock, and that is, that any deficiency of points on the side of the dam must be corrected in her offspring by using the sire that is full in those points, and has character and blood, acquired through a long descent, sufficient to stamp his good qualities upon the offspring of his get. To obtain really valuable horses for farm work, we must have and use only sires of a recognized breed or strains of blood, and generally of a heavier style than our farmers have hitherto been accustomed to, for as our mechanical appliances for performing farm operations improve, a heavier and faster class of horses is needed to enable them to be properly worked, the aim being to get the work done more rapidly under an improved system of labour. It was satisfactorily demonstrated as a fact at the recent trials of implements held at Utica, N. Y., that an increase in the rate of speed at which the machines were worked did not increase the amount of draught to the team to any extent. This was found to be especially the case with ploughs, it being shown that a fast walking team would do double more work in a day than a slow team, without increasing their labour, or the draught of the plough more than one tenth. This shows that, in order to double the amount of capacity for accomplishing work rapidly, we need only to add one tenth to the weight and muscular energy of our horses, while doubling their rate of walking.

For this purpose there is nothing better than the use of the Suffolk and Percheron as a graft upon our ordinary stock of farm horses. The Clydesdale is better adapted for drawing heavy loads at a moderate pace on good roads, than for farm work. It is slow in movement, costly to keep, and of uncertain temper, fit only to be entrusted in the hands of strong men. The Suffolk or Percheron is quite heavy and muscular enough, while, at the same time, they have a quick walking gait, easy docility of temper, and will work hard and keep up their condition on less feed than the Clydesdale. The Percheron stallion, wherever it has been introduced in America, has proved the best adapted to get stock suitable to the wants of our farmers of any breed known.

There is another matter in connection with breeding horses that is generally sadly neglected or overlooked, and that is the proper feeding and attending to the colts both before and after they are weaned. The mare is usually turned out to grass and left to herself without any attempt being made to increase the quantity and richness of her milk by feeding grain. She should have at least four quarts of oats per day, and so placed that her colt can get into the way of eating a share of it. In this way the colt will get accustomed to dry food before it is weaned, and if the grain is kept regularly supplied in increasing quantity, as the animal grows older, it will acquire a much greater amount of muscular development and power than if it had been left to grow up under the usual system of hard fare and many knocks amongst the cattle in the straw yard. It is a poor policy to let a young growing animal get stinted and stunted at the very outset, and lose all it has gained on summer pasturage, by neglect to properly feed and care for it during the autumn and winter. It is surely worth while for a farmer to double the value of the colts he may raise and bring them earlier to maturity, by a little extra expenditure of food and care upon them while young. Two quarts of oats a day to a colt for three years would come to 68½ bushels, worth say $27 00, while the colt's value would probably be at least $50 higher than if he had gone without the oats.

Early Maturity.

Prof. Miles, of the Michigan State Agricultural College, asserts, says the *National Live Stock Journal*, as one fact established by his recent carefully conducted experiments in feeding animals, that the importance of early maturity in animals raised for the production of meat is clearly shown in this series of experiments. In the manufacture of pork, the best return for the feed consumed, will undoubtedly be obtained by liberal feeding during the early stages of growth, and we cannot reasonably avoid the conclusion that the same rule is applicable to all animals raised for the purposes of the butcher. As animals are employed to convert the vegetable products of the farm into animal products of greater value, the greatest profit in fattening may reasonably be expected from liberal feeding during the period of growth, in which the organs of nutrition are capable of converting the largest amount of materials into animal tissues in a given time.—The results of experiments in pig feeding, show conclusively that animals when properly fed, give a much better return for the feed consumed, during the first few months of their lives, than they do after they reach maturity.

Foot and mouth disease is still seriously prevalent in Great Britain.

The Smithfield Club Cattle Show is to be held in London on the 5th to the 9th of December.

Weaning Colts.

We often, when travelling through the country in the fall, see colts with a rough, staring coat; eyes nearly closed, and a watery matter exuding therefrom, with a body shaped like a squash seed, which, but a few weeks before, while running with the mare, were possessed of a sleek, shining coat, eyes bright, and body as round as a barrel. Now the question arises, what is the cause of this? I answer, in nine cases out of ten, it is improper weaning. Nearly every colt in a farming community is allowed to run with its mother until about four or five months old, when, to suit the convenience of the owner, it is turned into some distant field out of sight, and if possible, out of hearing of its mother, there to run and whinney and worry, until it brings upon itself a fever, which weakens the constitution, closes the pores of its skin, and in brief, the whole organs of digestion become more or less diseased. All of this can be avoided by a little care in weaning.

My way of weaning is this—When my colt is four and a half months old, I put a strong leather halter upon him and place him in a stall, and put his mother in an adjoining stall, with a partition between, so arranged that they can see each other, and if possible get their heads together. The first day I let the colt nurse twice—the next day once. I feed the mare upon dry hay and dry feed, and about half milk her two or three times a day until dry. The colt I feed upon new-mown grass or fine clover hay, and give him a pint of oats twice per day, and in about two weeks I have my colt weaned and my mare dry, with my colt looking as well as ever. When he is one year old, he has as much growth and development of muscle, as one two years old weaned in the first described manner. When the mare becomes dry, colt and mare may be turned out together again in pasture.—*Cor. Rural New Yorker.*

Cross-breeds and Grades.

The distinction between cross-bred animals and grades is so seldom insisted upon that we are inclined to define the terms when used in connection. "Grades" among neat stock, sheep, and swine, are animals which have thoroughbred sires, with more or less, or altogether common blood on the side of the dam, while a cross-bred animal has both sire and dam thoroughbred, but of different breeds. Thus, if a common cow has a heifer calf by a Short-horn bull, the calf is a half-grade Short-horn, and her calf, by a bull of the same pure breed, would be a three-quarter grade Short-horn. The next grade would be seven-eigths, the next fifteen sixteenths, &c. Any pure-blood cow, crossed with a pure blood of another breed, produces a cross-breed, which, crossed with a full-blood or another cross-breed, would represent no gradation of blood, but be a cross-breed still, combining and exhibiting with considerable distinctness the characters of its different parent breeds, or the predominating ones.

In the case of grade animals, the common or native characteristics are often almost lost in the half or three-quarter grades, except perhaps some long-cultivated points, like the milking qualities of good, old, native cows, which are often intensified in their grade offspring. This is supposed to show the vital power of the breed, which has, as it were, accumulated through many generations. By the use, then, of thoroughbred sires, we are enabled to reproduce their valuable characteristics in their grade stock with great certainty. Inferior specimens always occur among herds of pure stock. These must be sold at low prices, or sent to the shambles. They may, however, if females, be used to great advantage often in breeding cross-breeds. As a rule, none but excellent animals should be used as sires of either thoroughbreds, grades or cross-breeds. —*American Agriculturist.*

The sale of thorough-bred stock at Bow Park on the 20th October, went off successfully. A great crowd of persons attended the sale, and all the animals on the catalogue were disposed of at good prices, with the exception of a few lots of sheep that were not reached when night approached.

Three valuable horses imported by Mr. Teasel, of Belleville, were lost on the *Atlas* in her recent voyage from England by sickness caused by bad weather. One animal was insured for £400 sterling, but from the reading of the policy it is doubtful if the loss can be recovered, notwithstanding all due care was used during the voyage by those who had charge.

Over 600 head of cattle were on the grounds of the Arkona cattle fair on the 12th inst. Three hundred had changed hands at prices ranging from thirty to forty dollars for steers; one hundred to one hundred and twenty dollars a yoke for oxen; and twenty-five to forty dollars for milch cows. Altogether, the fair was one of the best held in that section.

Considerable alarm has been excited in England by reports of the appearance of rinderpest near Berlin. The exigencies of the war, it is supposed, have caused some relaxation of the stringent regulations respecting the admission of cattle from Russia into Germany, and hence this fatal disease has once more passed from the Russian steppes, where it is mostly confined, into Western and Southern Europe.

J. H. Wallace gives the *Country Gentleman* some interesting facts as to the results of breeding from stallions at various ages. These show that some celebrated horses have been raised by stallions from 20 to 27 years old, and again that equally good ones have been raised by stallions of only two, three, or four years. He concludes that the question of age is not so important as that of condition.

Veterinary Department.

Chronic Nephritis.

Inflammation of the kidneys in the chronic form is more frequently met with than the acute disorder in the lower animals, and aged horses are frequently found affected with this disease, especially such as are exposed to sudden changes of temperature and other debilitating influences, and that have been often dosed with large quantities of medicines possessing diuretic properties. The symptoms resulting from chronic nephritis are a gradual loss of flesh, pain in the region of the loins, and impaired action of the hind extremities. The urine is also occasionally very high colored.

In treating this affection, the horse should be allowed perfect rest, and have a generous diet of easily digested food; also plenty of mucilaginous drinks. The loins may be rubbed every third or fourth day with mustard; and one drachm of tartar-emetic given every night. This medicine can be conveniently administered mixed with the food.

Enlargement or hypertrophy of the kidney also occurs, and cases have been met with where the kidney was enormously enlarged, and found to weigh upwards of fifty pounds. In cases of hypertrophy of the kidney very little can be done to afford relief.

Urinary Calculi.

A frequent cause of irritation in the urinary organs, either of the horse or ox, is calculi, which are found throughout the whole of the organs, and are classified according to their situation. When found in the kidneys, they are known as renal calculi; in the ureters, as uretral; whilst in the bladder, they are designated cystic or vesical.

In certain diseased conditions of the kidneys they are frequently found in great numbers. The general symptoms of urinary calculi, are a difficulty in urinating, and the urine presents a difference in its colour, sometimes being very light, in other cases very dark, and apparently mixed with blood. The patient occasionally shows colicky pains, by lying down and rolling, and gradually falls off in condition. When the calcareous deposits are situated within the bladder, they frequently attain considerable size, and cases are noticed where the calculus has weighed several ounces. Vesical calculi are also found to differ in their character; some specimens are very hard, whilst others are of a soft pasty nature. In all cases they are found to be composed largely of some of the combinations of lime, and particularly the carbonate. It has also been noticed that these concretions are oftenest met with in horses pasturing on limestone districts, or when the drinking water contains lime in large quantities. Cystic calculi can gener-

ally be readily detected. The urine is very high coloured and tinged with blood, and passed often. When the stone passes towards the neck of the bladder, it produces retention of urine, which is speedily followed by acuto pain, and the horse throws himself about, straining violently and looking towards his flanks. In other cases he walks with a stiff straddling action. When the above symptoms are presented, an examination should be made *per rectum*, which will tend to reveal the nature of the disease.

In the treatment of urinal calculi, the mineral acids have been found beneficial, as one drachm of hydrochloric acid daily, which must be largely diluted with water, and its use continued for some time.

Sweany.

A correspondent writes for information respecting the nature and treatment of "Sweany."

The injury of the muscles situated on the outer part of the shoulder is a very common occurrence, and is usually known among the farming community as "sweany." Professionally spreaking, it is generally designated "shoulder-slip." In young horses, the muscles are frequently injured from over-exertion or from going in an awkward manner when first put into harness, or from badly-fitting collars, causing an uneven bearing upon the shoulder. The process of nutrition is partially arrested, and the muscles waste, producing a hollow extending from the upper to the lower parts of the shoulder. In severe cases, the horse, when walking, has a peculiar rotatory motion of the limb, that is sometimes mistaken for dislocation of the shoulder joint. The outward motion is the result of the muscles on the inner part having no counterbalancing power. Cases of shoulder slip are usually treated successfully. The horse should be kept quiet, and the shoulder rubbed once a day with a mild stimulating liniment, and in some cases a sweating blister has a good effect. When the process of reproduction begins, moderate walking exercise is attended with benefit, as is also a run at pasture. Where the muscles are greatly atrophied, it usually takes two or three months before the animal is perfectly sound.

The term "sweany" is also applied to a slight wasting of the muscles, the result of injury to the lower part of the limb. In prolonged cases of foot lameness, as in navicular disease, the muscles become shrunk from the impaired action of the limb.

VESICLES ON THE UDDER.—A "Northern subscriber" wants advice respecting his cow, which he says is "affected with matter blotches, that break on being pressed in milking." Without more precise information we can only guess at the nature of the ailment, which is probably "cow pox." If so, no particular treatment will be required.

The Dairy.

Injuries and Obstructions in the Teats.

The teats of the cow are liable to various affections, which more less impede the flow of milk, or stop it altogether, and often form the basis of an inflamed state of the udder. One of the chief causes of these obstructions are small tumors about the size of a pea, which may be felt on compressing the teat between the finger and thumb, and can be often moved up and down the teat. Sometimes these entirely stop the flow of milk, and at others a small stream can be got by much pressure. These small substances are either what are called lacteal calculi (*milk stones*), or tumors attached to the lining of the teat. In these cases, a silver probe, or a knitting needle, must be passed up the teat, and the obstruction either broken down, or passed into the udder, where they often remain without inconvenience. It is not often possible to extract them from the end of the teat, nor should this be tried, as from the irritation caused, inflammation is frequently set up and the quarter is lost.

Strictures often exist in the passage of the teat, diminishing the flow of milk. In those cases a probe, or knitting-needle as large as the stricture will bear, and gradually increasing in size, should be frequently passed, so as to distend and keep the passage open.

Warts at the end of the teats are occasionally found, and are a great annoyance, not only obstructing the milk, but, from their soreness, causing the cow to become fidgety and uneasy while milked. In these cases the wart must be removed, either by the knife or by a ligature of fine silk tied around it; the latter is the preferable mode, as warts, when *sloughed off*, are not so liable to return as when excised with the knife.

Sore and chapped teats are best treated by the application of ointment of turpentine, (Venice turpentine, two ounces; hog's lard, four ounces; dissolved with a gentle heat and mixed,) or an ointment of Verdigris, (Verdigris in fine powder, one part; common turpentine, one part; hog's lard, twelve parts. Melt the two latter ingredients first, and then add the verdigris, stirring till cold). *Prairie Farmer.*

About Milking.

Five per cent., and perhaps ten, can be added to the amount of milk obtained from the cows of this country, if the following rules are inexorably followed :—

1. Never hurry cows, in driving to and from the pasture.

2. Milk as nearly at equal intervals as possible. Half-past five in the morning and six at night are good hours.

3. Be especially tender of the cow at milking times.

4. When seated, draw the milk as rapidly as possible, being certain always to get it all.

5. Never talk or think of anything beside what your are doing when milking.

6. Offer some caress and always a soothing word when you approach a cow and when you leave her. The better she loves you, the more free and complete will be her *abandon* as you sit at her side.

We append the not uncommon practice :—

1. Let some boy turn the cows away and get him who is fond of throwing stones and switching the hind ones every chance he gets.

2. Milk early in the morning and late at night, dividing the day into two portions, one of fifteen hours and the other nine.

3. Whack the cow over the back with the stool, or speak sharply to her if she does not "so," or "hoist."

4. Milk slowly and carelessly, and stop at the first slacking of the fluid.

5. Talk and laugh, and perhaps squirt milk at companion milkers, when seated at the cow.

6. Keep the animal in a tremble all the time you are milking, and when done give her a vigorous kick.—*Ex.*

Cows Winter Themselves.

Many farmers are accustomed to dry off their cows early, milking them only about eight months. We think it improves the milking qualities for the cows to milk them ten months, but they should be well fed. We have a neighbour who, ten years ago, found himself short of hay in the fall, and lamenting that he should have to pay out nearly all the product of his cows through the summer, to purchase hay at high prices, to winter them.

He had a moderate amount of straw, and we suggested that the product of his cows from the first day of December, if well fed, would pay for all the corn and meal, middlings, etc., necessary to winter his cows in fine condition. He tried this, keeping account of purchase of feed and sales of butter, and found that the butter came out ten dollars ahead in the spring. This greatly surprised him, as by feeding meal and middlings his cows so increased in milk, that he made $15 worth of butter per cow after the first of December; and he is wont to say that a farmer may have the product of his own cows through the cheese season, and then make them winter themselves. His cows came out in better condition than usual, and he found them much improved the following season. This has been our experience on many trials, and we believe that generous feeding and ten months, milking to be the best system for the dairyman.

But the best system of economizing fodder and working up all the qualities of food raised on the farm, so that nothing goes to waste, everything producing the best result in growth, and beef, milk and wool, is cooking or steaming the food of all our animals. *Live Stock Journal.*

Amount of Butter from a Given Quantity of Milk.

With the view of learning the amount of butter to be obtained from a given quantity of milk, I have recently tried the following experiment at my creamery in Onondaga County, N. Y., where I receive milk from three hundred cows.

The milk delivered at the factory on Saturday evening, July 30th, and Sunday morning, July 31st, amounting to 5,729 pounds, as soon as received, was run into deep cooler pails, and these were set into the tank of spring water. The temperature of this water is maintained uniform at about 53 degrees, by the introduction of an inch stream of water from the spring.

In this vat the pails remained for about 30 hours, when they were removed, in order that by a free exposure to the atmosphere the milk might be soured. It might have produced a better result, if the pails had been allowed to remain immersed in the water until the milk became loppered, but we feared that so long an exposure of the milk and cream to such a degree of cold would cause a bitterness of flavour to the cream and the butter made therefrom.

When about forty-eight hours old, the milk having soured and thickened, the cream was removed and kept until the next day. On Wednesday churning was done in large dash churns, operated by steam power. From this 5,729 pounds of milk, there was produced 232 pounds of butter. This shows an average of 24 69-100 pounds of milk as being required for a pound of butter, very closely meeting the opinion generally held, that two and a half times as much milk is used in making a pound of butter as in producing a pound of cheese. At the season of the year above named a yield of one pound of cured cheese from ten pounds of milk is very satisfactory. This would have produced 573 pounds of cured cheese, from the milk used in this experiment, which gave me 232 pounds of butter.

Cheese at that time was worth 14 cents a pound. Butter, to pay as well as cheese at this price, would need to sell at fully 35 cents a pound, allowing that the material used in making and packing butter cost one half cent per pound more than those required for cheese.

From this loppered milk, which in my case went to the pigs, there is sometimes made a kind of cheese used mainly by the German Jews. The curd is heated to a high temperature, is not salted, but is placed in small bags holding about one-half a pound, and subjected to moderate and long-continued pressure. When removed from this pressure, the cheese is cone shaped, two sides being flattened, salt is rubbed upon the outside and the curing is made in a cool damp place, as is the case with Limburg cheese. There is small demand for this kind of cheese, and if there was a large demand, the prejudice of the Jews will allow them to eat only that which Jewish hands have made. GARDNER B. WEEKS.

Syracuse, N. Y.

Keeping Up Dairy Stock.

Although the demand for dairy cows becomes greater every year, but little attention is paid to breeding them. As a rule, the patrons of cheese factories, and the farmers who send their milk to town to be sold, and who are supposed to have the best milking stock, never raise a calf. In truth, gestation is only allowed for the purpose of enabling the cow to renew her supply of milk. Her progeny is suckled by her only so long as her milk is unsuitable as an article of human food. In some few instances its life is spared till its rennet is in a condition to use for curd. Thus years go by, and a dairy of fifty cows selected for their milking qualities have raised no calves. When these cows become too old to produce a good supply of milk, they are sold or fattened for beef, and their places are supplied by cows raised by neighbouring farmers. In the Eastern States dairies are supplied with fresh stock by animals taken from droves from the West.

Thus it would seem that the best dairy stock of the country is in course of gradual extinction. What extra milkers are produced are the result of accident or sport, since very few are taking any pains to raise stock from those animals in which the hereditary milking qualities are strong. Among grade cattle, size and symmetry are the only two points for which animals are selected to breed from. Even in those breeds of cattle that are famous as milkers, as the Ayrshires and Alderneys, little pains are taken ordinarily, to keep unimpaired the milking qualities of the race. In order to do this it would seem to be necessary to let the calves suckle a long time, and thus protract the season of giving milk. This practice, however, would interfere with keeping the cows in the flesh that is desired in order to exhibit them at fairs, or to have them in good condition to sell.

It is certainly to be regretted that more care is not taken to improve the milking qualities of our stock. Extra milkers should be kept to breed from, their milk not taken so long or in such quantities that they abort their calves, neither should their progeny be killed at such an early age that it is thrown on the dung-hill in order that all the milk of the dam may go to the market or the cheese factory.

It is quite as necessary to raise the calves of good milkers in order to have another race of good milkers as it is to raise the colts of fine trotters in order to have fast horses. Extra dairy stock would bring fancy prices in the market if their milking qualities could be vouched for.—*Prairie Farmer.*

Winter Dairying.

The general impression among farmers who are engaged in the dairy business seems to be that when cold weather sets in, there is no longer any profit in dairying; that the extra feed required to produce the milk, and the greater care necessary to make butter and cheese at this season of the year, render it impossible to follow it with profit. Therefore, many commence to dry up their cows as soon as frost kills the grass, and the stalks and pumpkins are used up. They regard the dairy season as over, and send their cows into winter quarters, which too often means close quarters and a bare living allowance of dry fodder.

Now no dairyman who has had experience in making wintor butter needs to be told that it can be made profitably, and that those who allow their cows to shrink in their milk early in the season, or who dry them up on the first appearance of cold weather, fail to realize a large proportion of the profits that it is possible to make.

It is true that extra feed and care are required for the cows; that with the usual stable conveniences the labour of milking in cold weather is very unpleasant; and that without special preparation and extra care, but a proportionately small quantity of butter, of an inferior quality, will be obtained from the milk. Yet there is no doubt but that, with the proper conveniences for the management of the milk and the requisite experience and knowledge on the part of the dairywoman, as much butter can be made from a given quantity of milk as in the summer, and of a good quality, and that the extra price which such butter will command at that season will more than compensate for the extra food and corn required on the part of the cows. When the farmer fully realizes the importance of furnishing the cows with comfortable stables, and liberal supplies of food, in order to prepare them for the service of the coming season, he will find but little extra food and care necessary to secure a flow of milk up to within two months or six weeks of the time of coming in.

It is urged against winter milking that it overtasks and weakens the cows. This objection is surely a valid one, where the principle followed in wintering is the least possible care and the smallest amount of food that will bring them through in tolerable condition; but where the cows are fed an abundance of good nourishing food, so that the milk makes no drain on the amount needed to maintain bodily heat and animal vitality, the constitution of the cow will not be impaired.

Where an excess of food is furnished over and above what is needed to meet the wants of the animal, and of a proper quality, the milk will make little, if any, draft upon the strength or constitution of the cow. On the other hand, when thus fed and comfortably

housed, even though milked up to a short time before calving again, the cow will usually be in a far better condition for the opening of the coming season than when she has been dried up and wintered in the usual manner.—*Western Farmer.*

Slow Churning Preferable.

The *Scottish Farmer* is unwilling to concede any merit to the newly-invented churns that claim to produce butter so quickly, and argues strongly in favour of the patient, careful mode of churning. It says:

And here we would state that we do not believe in quick or rapid churning. We have, of late, been accustomed to the advertisements of churns, the great merit of which is stated to be that they produce the butter in a very short time. This quickness is very delusive; it conveys the idea that something is gained; but the point is not, is time gained? but is the butter in the condition in which it should be? To do work quickly is not always to do it well; on the contrary, we are inclined to say that, as a rule, good work almost always includes the outlay of patient labour. But this notion of quick churning as the right thing to aim at proceeds from an ignorance of what the points involved in butter making really are. Quickly made butter may be good enough if it is to be used at once, but it will not keep well. The reason is simply this—that all the buttery particles of the cream or milk are encased with thin pellicles of casein or the cheesy particles of the milk; if these are allowed to be in too great a proportion, the butter has that cheesey flavour we all so much dislike, and this will be the case if the churning is done so quickly as to fail to break up or separate the casein pellicles from the oily or buttery particles; this perfect separation can only be effected by slow churning. Of course, there is a medium; but we should be inclined to place the minimum time in which the churning operation is to be kept up at thirty minutes; between this and forty-five or sixty minutes, if the butter "comes," then the quality, other things being equal, will be good.

How to Raise Cows for the Dairy.

"Cattle Breeder," in the *Rural American*, says that a heifer that is designed for the dairy should be brought up with great care, and in a manner that will tend to make her growth, and bring out all her good qualities.

We will suppose that a heifer has been brought up in such a way to the age of 15 months, that she is in a thrifty condition, and has every indication of becoming a good cow. We should recommend that she should now be mated with the bull, as by beginning thus early, we can control in a great measure her future development. As the ensuing five or six years will bring out whatever of dairy quality she may possess, we cannot be too careful at first in our training. And first we should be careful about feeding too high, as heifers kept in high condition are liable to have inflammatory action set up in the udder towards the close of their term, which often destroys the usefulness of a portion of the organ, and tends to hinder the secretion of milk, thereby injuring the future reputation of the cow as a milker.

As there is always more or less of inflammation during the first stages of lactation, the young heifer should be milked as clean as possible at least three times a day, and her food should be light, with sufficient water, until the feverishness is gone, when it will be safe to adopt a more liberal policy.

In the early stages of lactation, cows have a tendency to dispose of their surplus nutrition through the milk secreting organs, consequently they should have a liberal supply of good food at this period, so that not only nature's demands may be met, but that their milk-producing qualities may be stimulated beyond this. In order to accomplish this, we should feed not only all the moist food the cow will bear and assimilate, but whatever of rich food that will have a tendency to produce the largest and best results, always keeping in mind never to impair her digestive powers, nor promote a secretion of fat. The cow that does not respond to such treatment as this should not be kept for dairy purposes, as those cows only are profitable whose milk-producing organs are capable of being improved by judicious feeding.

Hard-Milking Cows.

A correspondent of the *Western Rural* gives the following directions for the cure of a troublesome defect in some cows. He says: "Any one troubled with a hard-milking cow, can remedy it by going to the hen-coop, taking a small feather, and just clipping off the tip end; it will then be handsomely rounded; cut the feather end off, and you have a milking-tube. Get three of them. If you are careful, you can insert these, and old Brin won't know it! Milk the fourth teat; the rest will take care of themselves. If your cow does not milk easy enough, get larger quills. Any cow can be made to discharge her milk by continuing this practice, and she will never know how it was done."

The factory system of cheese-making seems to be gaining ground in England. Its advantages are repeatedly discussed, and in several districts it is being practically tested.

Mrs. Wm. Fowler, of Tuckersmith, has during the season, just ended, with the assistance of her three daughters, made, from twenty-eight cows, $1,075 worth of cheese, besides having supplied a household of fourteen persons with butter, and selling between $75 and $100 worth.

Poultry Yard.

Poultry as Farming Stock.

"How many farmers might obtain lots of new accommodation for poultry by simply making use of the buildings they possess already? and how many farmers consider fowls unworthy of consideration, because of some supposed difficulty or expense in erecting suitable houses? And worse than this, how many farmers try to make poultry pay, without any result beyond continual vexations, merely from lack of ingenuity in bringing ordinary appliances into play? 'Why bother,' they ask, 'about raising chickens in cowsheds and outbuildings, when you can set out as many coops as you like on the grass of a paddock, the gravel of a stable-yard, or upon the scattered rickyard straw?" Because, generally speaking, half your chickens die under the farmyard treatment. They get wet feet, and die of cramp; they drink rain water out of cart ruts, or drink the high-coloured soak-water of manure heaps, of strawyard drainings and other filthy slops, and consequently sicken and die by dozens. We have a troop of adult breeding fowls loose in the farmyard; they pick up a large part of their living there. But they do not thrive so well or keep so healthy as other troops of breeding stock which we have stationed at houses purposely erected in grass fields, far from the homestead. For a very small sum you may knock up a square boarded house, tarred outside, lime-washed inside, and covered with asphalted felt. Each of the four sides is in a separate piece, the roof (if of gable form) in two pieces, all hooked together at the corners by staples and pins. So a house (say six feet or seven feet cube) can be popped into a cart, and temporarily set up in a pasture, on a stubble, or wherever there may be a good picking for the fowls. A couple of perches, a few nests and a drinking pan form the furniture; while the ground covered in by the house (for there is no wooden floor) is spread over with loose earth, ashes and mortar. Such is the home for one cock and eight or ten hens and pullets during the breeding season, or the home of double this number of half-grown chickens. The house should be placed against a hedge, or in a corner where two hedges meet, so that a few poles and posts may protect it against cattle.

There can be no good reason against grazing fowls as well as other "animals;" and the farmer who tries it for the first time will be surprised at the amount of "grub" (literally, perhaps,) which the active scratchers and peckers find in a grass field, in and under the droppings of sheep and cattle, among hedge-roots, upon ditch sides, and so on; only a small supply of grain being necessary twice a day. We wish that many farmers may take our advice—procure what hardy sort you most fancy, Cochins or Brahmas that endure close quarters, game that are strong old English birds, Dorkings that like dry chalk and gravel countries; or, if you are in a low or wet neighbourhood, on a tenacious soil, put a Cochin cock to Dorking females (no cross breeds allowed for parents, mind; but get good blood of pure breeds), and you will have hardihood in your chicks as well as weight and quality in your couples for market."

These suggestions are eminently practical. Small portable poultry houses of the kind recommended, however, are no new feature. In Lord Holmesdale's park at Linton, numbers of these may be seen scattered about the domain, and in one respect they are superior to those suggested by the above extract. Each house is raised about two inches from the ground, resting on the axles of two wooden rollers, so that every few days it can be moved, by the aid of a lever, on to fresh soil, thus avoiding the destruction of the grass underneath, and preserving the air of the roosting house in a constant condition of purity.

In reference to the last suggestion as to rearing hardy table fowl, our experience is much in favour of the converse of the above recommendation, and putting a short-legged Dorking cock to Cochin, or, still better, to dark-pencilled Brahma hens. Size always comes from the female side, and Brahma hens are heavy, hardy and very prolific, to say nothing of their being good sitters and admirable mothers.—*London Field.*

The New York poultry show is announced for December 14th to 22nd. The prize list will be sent to any applicant, by addressing the N. Y. Poultry Society, P. O. box 316, N. Y. City. Entries close on December 3rd.

Buffetting into Friendship.—All sorts of expedients are adopted to prevent fighting when a fresh cock is turned down in a yard. We can suggest a very simple plan, which has the prime merit of being very successful. Tie an empty bag to the end of a long stick, and when the birds are intent on their encounter, buffet them with the bag one after the other. If they are watched for a short time, and this is done whenever they attempt to fight, they will give up their pugilism really from "fear of the sack."—*Canadian Poultry Chronicle*

Fowls Kept in Confined Space should have soft food at least once a day, say first feed in the morning, and plenty of green food; lettuce during the season is excellent, also cabbages; the heads should be thrown whole to the fowls, not chopped, it will afford them employment. Meat should also be supplied, else they may eat each other's feathers. A skewer run through a bullock's livor and then fastened to the ground in the centre of the yard is a capital plan, it enables the birds to pick off the meat in mouthfuls without its being drawn all over their yard. A change of food occasionally is always desirable.—*Canadian Poultry Chronicle.*

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Vine Culture.

To the Editor.

Sir,—Having noticed two or three articles in former numbers upon the science of grape oulture, I beg leave to make a few remarks upon the same. Now I differ somewhat from Mr. G., as he advises people to grow wild vines in preference to what he calls foreign varieties. Everyone knows that, whatever fruit is planted in its wild state, it will remain so for ever; and be sure the grape is no exception to the rule. Why go to the trouble of grafting, inarching, or budding the wild sorts of fruits with superior sorts, if merely planting a few cuttings will improve them, so as to be better for new beginners than imported and improved varieties? If our friend had advised grafting or inarching some of the hardiest of our imported varieties on the wild stock, I think he would have been nearer the mark. But the proper way to get grapes suitable for the climate is from seed sown from good hardy grapes crossed with some high flavoured variety. This requires both care and knowledge, which I will explain in another number.

Then again Mr. G. says that cuttings, as he describes, are much better than vines grown from eyes. There I must differ from him, as I am sure every good grape grower does. Vines grown from eyes properly managed make the very best you can possibly get.

I have made the vine my study for years, in fact I have been amongst them nearly all my life, and there is no way of propagating the vine that I have not practised; consequently, I know which is the best way to manage them for profit. I have trained them in every way that a vine could be trained, and I know our friend G.'s style has the advantage of wanting no trellis; but if they were very heavily laden with fruit, and had to encounter a storm with a heavy wind, they would all be broken to pieces, and vines and fruit all spoiled together. My name is well known as a grape grower in Covent Garden Market, London, England, for I have taken tons upon tons there, which have frequently brought ten and twelve shillings per pound, the earliest of them; and I never sold a pound under 2s. 6d. per pound, when all the grapes of the continent of Europe were coming into market by ship loads. I am convinced that vines grown from eyes are the very best that it is possible to get. I will explain the whole process of propagation in another paper, because it is of great consequence to the planter, for he can be getting his vines strong while he is getting his vineyard ready to receive them, and if they are well managed it will make two seasons difference to him in fruiting of them, which is of great consequence to his pocket. I also think that Mr. G. is inclined to be too cheap with ploughing and trench-ploughing the vineyard, etc.

I am convinced from my own observation and experience that excellent grapes can be grown in Canada, but it is not every one that will succeed with them. The land is not all suited to the vine, neither does every one know sufficient about them; and they will not find out all the little secrets from reading articles in the newspapers; it requires practice as well. I am certain it will pay a higher percentage to those who succeed than any other crop that can be grown; but I think our friend painted it in too glowing colours. A seven-year old vineyard is put down at three pounds for ploughing, harrowing, hoeing, pruning and so forth. Now as many of our readers don't know the work that is required, I will name some of the items requisite to produce good fruit. Firstly, the autumn pruning, then spring cleaning up with the plough or otherwise. I have omitted the fall cleaning, but that is quite as requisite as the spring. As soon as the vines are fairly broken they want disbudding, that is, all the superfluous shoots broken off, so that nothing but good sound bearing shoots are left to carry the crop. Then as soon as the bunches show themselves, there is the stopping process, that is, pinching the fruit-bearing shoots in to one or two leaves beyond the fruit; then the laterals all want stopping. All these operations require going over several times, as it will not do to be too severe on them all at once—besides, the shoots will not show themselves all at once. Then when the vines have blossomed and the fruit is set and beginning to grow, say the size of No. 4 shot or very small peas, take your scissors and thin the grapes out—begin early enough, for you cannot well thin them too much—for the more room they have the finer they will be, and you will have more weight than you would by letting them stop without thinning. Besides, the fruit will be so much better in quality, that it will fetch more than double the price that those will that are left to themselves.

You shall hear from me again soon, with the editor's permission. I should like to correspond with some vine dresser on the subject. I have just arrived from England.

GEO. HENRY COLLOP.

Richmond Road, Ottawa.

Note by Editor.—These views of our correspondent need some modification for the profitable culture of the grape in the *open air* in this climate, as he will discover before he has brought ten acres into full bearing and sold them in the Ottawa Market.

The Grape Crop of 1870.

From what we have seen and heard during the past few weeks, at the various agricultural fairs held this fall, the year 1870 seems to have proved one of the best and most favourable to grape growing we have ever had in Canada. The unusual excess of heat and sunshine during August and September caused the grape to commence colouring some two weeks earlier than usual, and the absence of frost till late in October enabled every grower to gather his crop of grapes in a fully ripened condition. At the Clair House vineyard, near Cooksville, the entire crop of grapes, 20 acres, not only ripened well, but the yield of must was large and the quality much superior to the average of seasons. Even the Catawba, a grape that rarely gets ripe there, is this year fully ripened.

That grapes can be grown and wine made from them in Canada has been fully demonstrated at Clair House, and with the large outlay incurred and appliances put up, we may expect that an article of first-rate excellence will be produced there. An experiment made of stripping the grapes from the stalks previous to being pressed, showed that a much finer, richer, and more highly coloured must could be obtained than under the usual process of pressing grapes and stalks together. As only the best and cleanest grapes are used for wine making, the must from the others being distilled into brandy, there ought to be wines of the highest quality of excellence obtained. The Clinton grape is the one mostly grown, with some Concords, Delawares, Isabellas and Catawbas, but other kinds are being used as fast as the vines come into bearing, and another year or two will test the merits of some of the new sorts for wine making. J. M.

Raspberries.

The editor of the *Small Fruit Recorder* tells the readers of that interesting and instructive paper that at South Bend, Indiana, the following results are noted in the different varieties named below:

Seneca Black Cap.—The finest distinct black sort. Wonderfully productive, and this season kept in bearing the latest of all. Very superior quality; sells quick. Perfectly hardy and reliable.

Philadelphia.—Hardy; enormously prolific. One of the most reliable.

Clark.—Very hardy and vigorous. Firmer than the last, and better colour, netting nearly as much money from the crop, although not so prolific. Very sweet and delicious.

Mammoth Cluster.—"Ahead of the heap." Immensely productive. The bunches bent to the ground with the load of largest-sized fruit. Pulpy and delicious. In great demand on account of its very sweet and delicious flavour.

Naomi.—Proves hardy, while the Franconia kills down by its side, thus showing them to be distinct varieties. Very large, delicious and productive.

Golden Thornless.—Can't be too highly extolled for productiveness, hardiness and beauty of fruit. A great favourite.

The reader will remember that the soil on which these plants grow is very light sand.

A writer in the same paper, speaking of raspberries at Palmyra, N. Y., says:

Among our standard reliable sorts, I would name Davidson's Thornless, Seneca, and Mammoth Cluster, as taking the lead for profit and table use of the black kind; and of the red, Clark, Philadelphia and Kirtland. The Seneca sold for the highest prices on account of its fine uniform size and coal black colour, besides yielding a week after other kinds were gone. It certainly keeps in bearing longer than any other, whilst its first pickings were made nearly as soon as the Doolittle. The Mammoth Cluster has no equal for productiveness and large size of fruit, and very sweet, delicious flavour. Another important point in its favour is that it bears just as well on four-year old bushes as these younger. This is of great importance.

The Davidson Thornless should be in every garden. It is deliciously sweet and juicy. Very productive and *very* early.

The Clark is a magnificent red raspberry, very hardy, never having been hurt by the winter. Fruit large size, and sufficiently fine (if picked as soon as it turns) to carry two to three hundred miles. Its high scarlet colour and most delicious flavour give it a good sale. For home use nothing excels it.

Philadelphia and Kirtland we have often given our opinion of. Suffice it to say that our faith in them is not abated in the least.

The Naomi is a magnificent red variety. Very firm, exceedingly productive, beautiful shape, uniformly large size, high colour, delicious, and bush perfectly hardy. It is certainly a different berry from the Franconia.

The Golden Thornless has astonished all who have seen it. Bushes loaded to the ground with wonderful large and beautiful dark golden fruit. If gathered as soon as they turn they are very good, but if allowed to remain on until "dead" ripe, they lose their flavour, and have a dirty, unnatural appearance. We are confident they will become one of the most profitable for drying.

The Lum's fall bearing, or "ever-bearing," and Catawissa are very valuable as fall bearers—especially in sections where peaches cannot be grown. To have them yield large crops the tops should all be cut off just as winter sets in, and a large lot of coarse manure thrown right over the crown. Leave this on in the spring, and allow the new growth to come right up through, and when this gets *not to exceed* two feet high, nip off the tip ends, so that they will branch out freely, for let it be remembered, that those varieties yield the bulk of their crop on about six or eight inches of the top of each cane. So that the more tips they have the greater the crop. Moisture is what they delight in, hence the necessity of heavy mulch.

The Black Raspberry—General Directions for its Cultivation.

Since the several varieties of the improved Black Raspberries have become so deservedly popular, not for domestic use alone, but for the general market also, it occurs to me that perhaps some specific directions for their cultivation would be received with favour by many of the numerous readers of the horticultural department of your excellent journal. Having made its cultivation and development a specialty for the space of nine years last past, I will submit the following summary:—

It will require 1,800 to 2,000 plants to set a single acre of land. Any good soil adapted to the production of corn or potatoes may be used. A position shielded from the range of heavy winds would be preferable. A partial shade, as a young orchard, is no impediment.

In the fall or early spring prepare your ground as for corn or potatoes, then proceed to strike furrows in the direction you wish the rows to run, seven feet apart, three inches deep, leaving the bottom of the furrow broad and level. Cross-mark with corn-marker three and a half feet apart, and in planting place a plant at each crossing, carefully spreading the small fibres out in the furrow, with the sprout or germ upward, then with the hoe carefully cover all the roots with fine soil two inches deep. After this, with cultivator and hoe, see that neither grass nor weeds are allowed to grow. A crop of early corn, potatoes, beans, or what is more profitable, strawberries, may be grown between the rows the first season without detriment.

They will need no pruning the first summer. Let the whole growth trail on the ground, and during the latter half of August, and through September, attention should be directed to layering the tips for the purpose of producing a valuable crop of plants. When the tips of the trailing vines seem swollen, and become naked or free from leaves, of a reddish colour, and semi-transparent, they are ready for laying, the proper mode of doing which is, with the corner of a hoe excavate the soil under the tip, letting it fall into the cavity, and replacing the soil, pressing all lightly with the foot or hoe. This causes the germ of the future plant to form from, or grow out of the extreme tip or point of the young cane or brier.

And this is the only true process of propagating black raspberry plants, but when thus treated, each plant will multiply itself from ten to thirty fold the first season after

setting; the value of which exceeds that of a crop of fruit.

The following spring, after the young plants are all removed from the ground, cut off the ends of the previous season's growth, to within one and a half to two feet of the root—it may seem wasteful, but is necessary to be done—thereby, the size of the fruit is increased, and the labour of harvesting is greatly diminished.

There will now spring up large upright canes for the next season's fruiting; these, when one and a half to two feet high, in the latter half of June, should be cut or pinched off at the tips. This causes numerous side branches to start, and the main canes to grow more stocky, which prevents their being blown down by the wind, and also the necessity for staking and tying up to support the next crop of fruit. The following winter or early spring these side branches also should be cut off, at least one-third to half their length, and then such shallow cultivation as is sufficient to keep the weeds and grass subdued, is all that is needed till after the fruit is gathered, when all the old bushes may be cut away, and the ground thoroughly cultivated, or ploughed, not too deeply, turning the furrows toward the rows. And after this, in each year, the same course of treatment is advisable.

No pinching nor cutting back of the young canes after the first of July.

In gathering berries for market, see that all are fully ripe—partially ripened fruit becomes soft and sour in much less time than it does when well ripened before being packed. Ventilated quart or pint boxes, not more than three inches deep, square in form, with bottoms elevated, so as to pack one upon the other, without shelves or drawers, are preferable for packing. The ordinary yield of the improved varieties of black raspberries is about 2,000 quarts per acre. But with labour and skill bestowed to that end, more than double that amount is not unfrequently gathered from a single acre in one season. A good picker often gathers 75 to 85 quarts in one day, but 50 quarts would be considered a good day's work in good picking, and 35 quarts would be a fair average during the ordinary season for berries.

In conclusion, in commendation of the improved varieties of the black raspberries as adapted to profitable cultivation, I am free to affirm that they have indeed most valuable qualities; they need no covering nor winter protection, do not fill the ground with suckers, are great bearers, and the fruit is so firm that it can be shipped to our most distant markets in good condition, and invariably finds a ready sale at highly remunerative prices.—*Utica Herald.*

KEEPING PLUMS.—"H. G." asks, "Can you inform me of the best plan to keep plums fresh for a length of time, after being ripe?" Will some one who knows how please reply to this inquiry?

The Work Done by a Leaf.

Now, what does it do? It pumps water from the ground through the thousands of tubes in the stem of the tree (the tubes which itself has made) and sends it into the atmosphere in the form of unseen mist, to be condensed and fall in showers—the very water that, were it not for the leaf, would sink in the earth, and find its way perchance through subterranean channels to the sea. And thus it is that we see it works to give us the "early and the latter rain." It works to send the rills and streams, like lines of silver, adown the mountain and across the plain. It works to pour down the larger brooks which turn the wheel that energises machinery which gives employment to millions. And thus a thousand wants are supplied, commerce stimulated, wealth accumulated, and intelligence disseminated through the agency of this wealth. The leaf does it all.

It has been demonstrated that every square inch of leaf lifts 3-500th of an ounce every twenty-four hours. Now, a large forest tree has about five acres of foliage, or 6,272,640 square inches. This being multiplied by 3-500th (the amount pumped by every inch) gives us the result—2,352 ounces or 1,176 quarts, or 294 gallons, or 8 barrels, a medium-sized forest tree about 5 barrels. The trees on an acre give 800 barrels in 24 hours. An acre of grass, or clover, or grain would yield about the same result.

The leaf is a worker, too, in another field of labour, where we seldom look, where it exhibits its unselfishness—where it works for the good of man in a most wonderful manner. It carries immense quantities of electricity from the earth to the cloude, and from the clouds to the earth. Rather dangerous business, transporting lightning. I think it would be considered contraband by the "U.S.," or "Merchants' Union," or any common carriers, but it is particularly fitted for this work. Did you ever see a leaf entire as to its edges? It is always pointed, and these points, whether they be large or small, are just fitted to handle this dangerous agent. These tiny fingers seize upon and carry it away with ease and wonderful despatch. There must be no delay; it is "time freight." True, sometimes it gathers up more than the trunk can carry; and in the attempt to crowd and pack the baggage the trunk gets terribly shattered, and we say that lightning struck the tree. But it had been struck a thousand times before. This time it was overworked.

As we rub a stick of sealing-wax or a glass tube with a warm silk handkerchief, so the air is always rubbing over the face of the earth with more or less rapidity. And what a huge electrical machine. But be not afraid—the leaf will see that it is taken care of. As we guard our roofs from the destructive action of lightning—dashing to the earth, crashing, rending, burning on its way—by erecting the lightning rod, whose bristling points quietly drain the clouds, or failing to do this, receive the charge and bear it harmless to the earth—so God has made a living conductor in every pointed leaf, in every blade of grass. It is said that a common blade of grass, pointed by Nature's exquisite workmanship, is three times as effectual as the finest cambric needle, and a single twig of leaves is far more efficient than the metallic points of the best constructed rod. What, then, must be the agency of a single forest in disarming the forces of the storm of their terror?

Nature furnishes the lightning, and it furnishes the lightning rods. Take a hint, then, and plant trees.—*The American Entomologist and Botanist.*

Wide Planting and Long Pruning the Grape.

As so much failure has resulted in planting vines so close to each other, and from the practice of cutting away the wood to from two to four canes if long pruning is practised, or to spurs if spur pruning is the system adopted, let new beginners in planting a vineyard set their grapes from eight to twelve feet apart in the rows, having regard to the richness of the soil and the character of the vine as a rank or moderate grower; let the trellises be six and a half or seven feet in height, with five wires. When the vines have fully covered the trellises, and are impatient of restraint, let the vigneron take out alternate vines, leaving the others from sixteen to twenty-four feet distant from each other in the rows.

Perform the first pruning in the fall or winter, cutting away some of the tangled mass of the wood, but leaving three times as much as would seem to be required. Do nothing more with the vines till the early days of summer. In the meantime the buds burst, and shoots push out, the leaves develop and the fruit clusters appear; and as not a few but very many buds are left to receive the life-giving currents proceeding from a large and strong root, vegetation proceeds in its normal course, and there will be strength and vigour, and not weakness and decay, in the progress it will have made. It is during the critical period of the starting of vegetation that nature should encounter nothing to disturb the performance of her functions, and this period having passed, when the clusters have appeared, the time comes when the real work of pruning may be done.

Surveying the trellises, the cultivator will no doubt see fruit clusters in excess; whereas, in case of deficiency, he would have no remedy. Have the courage to cut when cutting is attended with no danger, even though scores and scores of clusters of incipient fruit are thereby made to come to naught. The planter may remove entire canes, then

entire shoots, until he is satisfied that they may have no more fruit than they will have leaves to ripen. This completed, the canes, and from time to time, the shoots, are brought up, and secured to the trellis wires. No summer pruning or pinching is to be resorted to, and nature proceeds with the work of maturing the fruit.

Many grapes treated in this way have been found free from disease; whilst others planted in the same kind of soil, but which have been pruned in accordance with the ordinary method, have been badly stricken with mildew.—*Journal of Horticulture.*

NOTE BY THE HORT. EDITOR.—We heartily endorse so much of the above article as relates to wide planting, and long pruning, without summer pruning; but we fail to be able to appreciate the necessity of fall or winter pruning, and believe that it can only be advocated on the ground of convenience, the spring being so short that it is a great gain to do all that can be done before the rush of spring work comes on. However, if fall or winter pruning is to be done, we would most heartily commend the course above suggested, for it is not safe in this climate to prune close in the fall. But we see no reason why the whole pruning can not be done in the early spring, in March in some places and seasons, in April in othere. The idea that the vine can not be safely pruned at that time is giving way before the test of experience; and the fine-sounding expressions about "the critical period of the starting of vegetation," etc., etc., are to be considered merely as rhetorical flourishes.

Vine Culture and Garden Talk.

Some time since, when giving a description of our wire fences for vines, and application of manure to them, I promised to state results, as well as part of the process, in some future communication. Our vines are Hartford Prolific, Delaware, Black Cluster, Concord and Isabella, several of each kind.

Our course of training has hitherto been to nail the vine to a board fence having a southern aspect. This fence blew down last spring, and we substituted heavy wires, strained from post to post, the posts nicely planed and pitched at bottom to prevent decay, and placed about twelve feet apart. We consider, after this summer's trial, that the wire does not answer so well for the fruit as the board fence, but the appearance is very pleasing. The fruit sets better against the boards, and is somewhat earlier, but our manure is peculiar and our stronghold, and consists of nightsoil pumped direct from the vault, and poured all around the vines, on earth previously loosened with the fork, to the extent in surface of about six feet square, and in quantities of about six pailsful to each vine. This is the third year we have used this manure in this manner, and our success is most complete, notwithstanding the absence of the fence on which to train the vines. We have had a most excellent crop, and the quality has been pronounced by good judges as quite equal to hothouse grapes; indeed some preferred the fine fresh flavour of those grown in the open air with us to that of the hothouse production.

We attribute the quality as well as quantity, entirely to the manure, and the shoots for another year are really prodigious, many of them being twenty feet long, and some as thick as the forefinger of the hand—and I have rather a large heavy one, having of late years done a good deal of work with it. We are now fully convinced that the plan we have adopted is good, and works to perfection. We have a large puncheon sunk in the earth, and therefore quite tight, from which we pump every fall, about November, 70 to 80 pailsful of soil, and distribute as before described. I am sure we have gathered at least 250 pounds of grapes off our vines, 12 in number, and extending 170 feet in length. At 15c. a pound wholesale, the produce would have been worth nearly $40 to purchase. But it has always been a maxim of ours that any luxury that we can produce may be used *ad libitum*. We are economical enough in all we cannot raise, but we consider, where a little extra care or attention, combined with industry, can furnish luxuries in abundance, we have a full right to enjoy the result without stint.

This principle works well in any family, and is a source of much contentment under some deprivation in things we cannot raise, and of great enjoyment in others that we can. There is to us great satisfaction in seeing our friends feast on such home productions, and we heartily advise our brother farmers to cultivate the same feeling, and at the same time add to their store of enjoyment any luxuries that may be within their reach on these terms. These little matters make home what home should be to every family—a place to look back upon in after life as one of sunshine and comfort; and when hereafter, our children are singing some of the old and beautiful songs that men of taste and refinement have written and will yet write on home and its surroundings, what if it does bring the water into a strong man's eyes at the retrospective thought?—there are few men, and no woman, young or old, but would readily forgive and appreciate it.

Whilst on the subject of the garden, I may mention the large size of our apples. We have two trees that produce many barrels, and nnmbers of these apples measure 13 inches in circumference, and some weigh 1¼ pounds. Of course, this great weight is not attained by many,

Our young trees, planted out only four clear years, bore pretty well last year and this also, but the dry spring caused bushels of little apples, the size of nuts and walnuts, to fall off before coming to maturity. Three or four of our best young standard and dwarf pear trees have died down to the root without any apparent reason. The leaves turned quite black a month since, and the trees seem sure to die.

If any of your correspondents can give some advice for the prevention or explain the cause of this, they would certainly merit and receive our best thanks, as I fear the same disorder will extend to the rest of our orchard, and I am getting too old to afford time to plant young trees much longer for me to hope to see them bear fruit; but my children may, and one of the comforts of a farm and garden is that hereafter your children will look back on the plantation as the work of their father's hand, and no doubt the recollection will be as pleasant to them as the prospect is to the father. So we will plant away as long as we live; some one will be here to enjoy it, and our children may thus be induced never to part with the homestead, on which we have spent so much personal exertion for them. C.

Twitchell's Acidometer.

The able editor of the *Grape Culturist*, published at St. Louis, Mo., states in the September number that he has submitted one of these instruments to a thorough trial on some eight varieties of wines, and after this test of its usefulness confidently recommends it as the only safe and practical instrument of the kind he has seen, and which any person of common intelligence can use with perfect safety. The action of this instrument is based upon the well-established fact that where an excess of carbonate is added to a liquid containing an acid, there will be given off carbonic acid gas in exact proportion to the amount of acid there was in the liquid. This instrument is so made that the exact amount of acid in the liquid can be read off from a graduated scale, without any calculations or corrections. It fills a much felt want, and should be in the hands of every careful wine maker, and we notice it now so that those who are interested in this matter can supply themselves in season for the present vintage.

Blackberries.

The experience of another season seems to be in favour of the Kittatinny, on account of its ability to endure the climate, and the large crop of handsome fruit. It is a most vigorous grower, and throws up numerous suckers, which require to be kept under. The canes should be kept pinched back to a height of four feet, and have plenty of room to branch out, and the branches be also pinched in at three feet. The canes are armed with fearful thorns, but this is true of all, and we must put up with them until some person introduces a really valuable blackberry without thorns.

Keeping Grapes Fresh for Winter Use.

If you desire delicious, fresh grapes in winter, or even up to the next spring, they can be had by a very little expense. Pick the bunches only on a dry, warm day, and place them in a cool, shady place for at least three days; then commence to pack them in paper boxes that will hold about ten pounds. Between each layer of grapes place a single thickness of newspaper; the boxes should not contain more than three layers in thickness. Then place in a cool, dry room—not in a cellar, for the *natural* dampness there will cause mould and decay. In this way the past very damp season we kept Concord, Delaware, Hartford and Diana, the last being in good condition in March.—*Rural World.*

A Word for the Toad.

During the past week the Striped Potato-bug (*Lytta vittata*) came into my potato-patch, and in two days defoliated about a thousand hills, when four of us set to work gathering them. In one hour we gathered a full gallon. Where did such a quantity of these bugs come from in so short a time? But the most curious part is to come? A black boy who was helping me said he did not like to gather the bugs, because wherever they were numerous he found a lot of toads, and he was afraid of toads. This attracted my attention, as I had seen a number of toads myself, and, to my surprise, I found that they were eating the bugs. One fellow ate twelve bugs, at the rate of four per minute. He would not eat any faster, although we ran the bugs all around and over him. Has any one else noticed this? It is certainly new to me, for I did not think anything would eat these Blister Beetles. The Ladybird is shy of them, and so far as I have observed, none of the common cannibal beetles will attack them.—S. F. T., Hannibal, Mo., in *Am. Entomologist.*

Horticultural Notes.

To the Editor.

SIR,—I have noticed through the summer many complaints about mice girdling apple trees. I have never lost a tree from this cause, since I adopted, some sixteen years ago, the very simple plan of putting strips of cedar bark, or bits of shingles, round the trunk, which I do every autumn and remove them in spring. I just put them up round the trunk, touching the ground, and tie the strips with a string. Any little boy or girl could cover an orchard in a day, and the same strips will do for years. I have only some two dozen of trees, and do the job myself.

This has been the most extraordinary season for vermin I ever remember. Squirrels and chipmunks ate all my strawberries, and a third of my gooseberries. Field mice tried everything; they destroyed a great many dwarf peas, and carrots, turnips, beet root, and savoy cabbage. There was a great crop of plums, but they rotted *in bunches*. I examined the rot closely, and it was evidently a very rapid decay, no insect being visible. Our apples, too, rotted, and there are some kinds with worm holes in almost every apple. I never noticed either plum or apple rot till last year; the worms are old acquaintances. I caught a good many of the vermin in rat traps. There is one very valuable vegetable, namely rhubarb, which no animal ever injures, and it is in my opinion about the most useful and I believe most wholesome plant in the garden; and this year it was good till September, having been first pulled the last week of April.

I noticed the doings of the curculio, but all the damage they did was very small. I think some of the birds pierce the fallen plums for the purpose of eating the curculio, as I noticed many of them with big holes in them and the worm gone. I have always lots of birds, and I do not grudge them all they steal, as their music and the good service they do in eating insects, and their pretty cheerful ways, far more than compensate for any mischief they do.

One family of squirrels was brought up about the house somewhere, as one morning five little fellows were descried sitting in the tin pipe at the eaves of the roof, and three of them were murdered before they got fairly launched in the world. It was cruel, I daresay, but they are awful little thieves. I had a nice row of crocuses, and the little villains carried off every one just when they were about ready to remove for the summer. They did not meddle with the tulips just in the same place. I found the helleboro most effectual on the currant and gooseberry trees, but I think I had to administer one or two doses every fortnight during the whole summer. Still I saved my fruit, and half an hour or so in a summer morning will suffice for the purpose.

I didn't mean to spin so long a yarn when I began, and I hope you will excuse it.

Fergus, 28th October, 1870. F.

Fall Bearing Raspberries.

Mr. U. H. Davies has sent us some ripe raspberries, gathered on the 12th of October, and which he found growing near the G. W. Railway track in the vicinity of Woodstock, and says that he has lived in Canada forty-four years and never before met with such a phenomenon.

There are many varieties of fall bearing raspberries, some of which are cultivated in our gardens, but they are none of them of much value when grapes are abundant. We are satisfied with raspberries in their regular season, and do not care to return to them when pears, grapes and apples have become abundant.

Protection against Mice.

To the Editor.

SIR,—The annual loss sustained by the ravages of mice among fruit trees all over the country, during the winter months, makes it a question of considerable importance, how we may cheaply and effectually protect them from being girdled. The importance of this subject will be deemed a sufficient apology for laying before your readers my plan for accomplishing this desirable object.

I use well-burnt round tiles, such as are used in under-draining, four inches in diameter by fourteen inches long, divided lengthwise in two equal parts. Clearing away the dirt two inches deep from each tree, these pieces are brought together around each tree, fastening their tops with a piece of wire and drawing the dirt around against them, and pressing with the foot, the work is done. If they are properly burnt these tiles will stand many years.

Two boys will thus protect several hundred trees in a day, costing in all two and a quarter cents a tree. The above-sized tiles were bought from Mr. Campbell, of Hamilton, for twenty dollars per thousand, that is, two thousand pieces. May I request that if you are aware of a more effectual plan you will publish it.

W. H. MILLS.

Orchard not Bearing.

To the Editor.

SIR,—You would confer a favour by giving me information on the following subject, either by letter or through the columns of your valuable journal. Eight years ago I set out some standard apple trees pretty late in the spring, since which time they have grown steadily each season, so that now they spread out from ten to twenty feet in diameter, and yet they bear no fruit, at least, not till this season, when there were a few apples on some of them. They all appear to run to wood in growth. What I want to know is, how can I check this rapid growth and cause them to bear, without injuring the trees? Last year I pruned them well, but still the growth seems as rapid as ever, without yielding fruit.

By replying to the above you will greatly oblige an old subscriber.

Lucan. S. CLATTERHAM.

REPLY.—Seed down the orchard for a few years, and the growth of wood will be checked and fruit buds will form.

MILDEW ON ROSES.—A correspondent of the *Cottage Gardener* gives the following cure for mildew on roses: Rub down in a gallon of soft water one pound of soft soap; with the solution syringe the upper and under surface of the foliage, and the mildew will disappear as if by magic.

THE CARPET CHAMOMILE.—This plant will make a good turf, as it spreads fast, and grows freely on all soils, even the poorest, while it is not affected by the hottest sun or the most severe drought.

A correspondent of the *New England Farmer* says that last year he saved his onions from the maggot by removing the earth from the bulbs with his fingers, being careful not to disturb the roots while weeding them. A pound of copperas dissolved in a pailful of soft soap, and, when thinned with water, applied to the onions, is good to keep off the maggot, and to promote the growth of the onions.

Tilton's Journal of Horticulture for November has been received, and is fully up to its usual standard of excellence. The illustrations and descriptions of new things are alone worth the subscription, and as the price is to be reduced from $3 00 to $1 50 after this year, every one can afford to take it. Publishers offer very liberal inducements for making clubs. J. E. Tilton & Co., Boston, will send to any address a sample copy and premium list.

THE TROPHY TOMATO.—It is without exception the best and most perfect tomato we have ever seen. "As heavy as a stone," is the expression of those who have examined it on our grounds. Certainly we never saw its equal in size, beauty, uniformity, solidity and goodness. In cutting it one is reminded of an old cheese. There are no open cavities in it. The slices, when cut and laid upon a dish, are as perfect as the slice of a potato. The flavour is deliciously sweet. The average weight, 1lb.; many weigh from 1½ to 1¾lbs.—*The Small Fruit Recorder.*

SPLIT TREES.—W. A. Gordon, of Wardsville, writes:—"About twelve months since you advised me respecting the bolting of split trees with iron bolts. I have tried on two; one of them is a perfect success, the other has half of it dead. As to the cause of death I have two opinions; first, it had been rent a long time; second, I bolted it right through the heart. In the other tree the bolt is about an inch from the centre of the stock, which I believe is a good plan."

DISEASED PEAR-TREE—H. Thompson sends a sprig of a pear-tree, with an enquiry as to the cause and proper treatment of the diseased condition. The leaves have been attacked by a fungus, a small parasitic plant, growing on the under side of the leaves. Flour of sulphur is destructive to most microscopic fungi, and if it should appear on the leaves next year, a quantity of sulphur may be sprinkled on the surface of the ground as far as the branches extend, and dusted through the leaves. This should be done as soon as the first appearance of anything can be detected on the leaves, else it will be too late.

SOWING LAWN GRASS SEED.—"Essa" is informed that the best time for sowing lawn grass seed in this climate is the spring.

Correspondence.

Sugar Beet Seed.

Mr. H. L. Smith, of Parry Sound, asks where he can obtain genuine Silesian Sugar Beet Seed, and huw many pounds it takes to an acre, to sow in drills 2½ feet apart?

There are several kinds of sugar beet seed. Many prefer the white Silesian, but in some factories on the Continent several other sorts are as much thought of, and used. Much depends on the sort of land on which the seed is to be sown. An application to any of the first-class seedsmen of the principal cities in Canada will ensure a genuine article. As Mr. Smith writes from Parry Sound, we suppose his nearest point of supply will be Toronto. Messrs. C. Dawbarn, Simmers, or Fleming, wholesale seedsmen of this city, can furnish reliable qualities and in any quantity that may be required, provided the order reach them early enough to get the supply from home, before the spring opens. We should advise an early application to one of these firms, desiring them to furnish a quantity of each kind that has been found to answer by their correspondents in Europe. Our enquirer will then have an opportunity of testing three or four varieties as adapted to his soil and climate. About 6lbs. will sow an acre, and be sure of a sufficiently thick plant, allowing for some to be imperfect seed. Of course, one-half this quantity will suffice, provided it all grows; but all the mangel tribe are very liable to miss growing, and thus leave large gaps in the rows About the beginning of June is the best time to sow; this has been proved, by many experiments, to produce the best roots with most sugar per ton.

Pedigrees of Exhibition Animals.

Several enquiries have been addressed to us in reference to this subject. One correspondent asks whether he complied with the resolution of his Agricultural Society that "Exhibitors of thorough-bred stock hand in pedigrees of the same to the President on the morning of the show," by handing in a certificate of the record in the Herd Book. With regard to this enquiry we should answer that literally he did not, but in effect he did, as the certificate of record and the Herd Book would supply the necessary information.

Another correspondent complains that the judges refused to accept or look at a copy of pedigree, and wishes to know whether a judge should "understand, examine, and be influenced by pedigrees?" We think there can be no question but that the pedigree should be taken into account in awarding prizes. It is not customary, nor is it always necessary for the judge to examine pedigrees. That is generally done, if required, when the entry is made; and the judge may take it for granted, if an animal is admitted to competition in a thoroughbred class, that the pedigree is satisfactory. But where two animals approximate very nearly in merit, as to points of excellence, the consideration of their respective pedigrees should certainly be allowed due influence in coming to a decision. It is an element of *primary* importance.

Natural History Query.

E. C., Cobourg, writes, "Can you or any of your readers inform me whether there is any book published exclusively on Canadian birds; if there is, where I can get one? And can you tell me the name and species of a bird which lays its egg in other birds' nests? The colour of the egg is white with blackish brown spots; the nests in which the eggs were laid belonged to small birds, and the eggs were much smaller. I have found five or six of them, but never more than one egg in each nest."

There is no book of the kind published in English, but a work in French on the subject was published some time ago. The bird whose cuckoo-habits are referred to is the Cow bird (*molothrus pecoris*), one of the family of starlings, of which the oriole, bobo-link, and meadow lark are also members.

Coal Tar and Crude Petroleum for Roofing.

"W. H." inquires the best mode of applying coal or gas tar to roofs. The only effectual mode of using it is to heat it to the boiling point, and apply it with a brush, taking care to allow the heat to subside until it will *not burn* a feather, or the brush will be spoiled. The outside coating of tar will all come off in a year or two, as such is the effect of light and exposure to the air and elements; but as it penetrates into the pores of the wood of the shingles, when applied boiling hot, the portion so absorbed will never wear away, and the shingles will be preserved to a great degree from decay. The price by the barrel at the Gas Works is about ten cents per gallon, exclusive of the barrel.

As to the value of crude petroleum as a coating to shingles, there cannot be two opinions as to its increasing their durability; and the outside when exposed to the elements will not be affected in the same manner, or to any such extent, as if coal tar be used. But its extreme inflammability renders its value very doubtful when all the disadvantages are taken into account. Rain-water could not be used for many months from a roof so covered, on account of the strong effluvium arising therefrom.

Scheele's Green.

To the Editor.

SIR,—A word as to the employment of this poison as a beetle destroyer.

Without going deeply into the chemistry of the matter, I may allude to the fallacy of supposing that, because offensive and poisonous vegetable substances are neutralized and utilized in the processes of vegetation, therefore mineral poisons can be so neutralized.

The fact is that many of these vegetable substances consist of perfectly harmless chemical elements, owing their virus to their mode of combination, which virus is destroyed by the changes which they undergo during the growth of a crop. But mineral poisons frequently enter unchanged from the soil into the plant, and thence into the animal which eats it. And it is worth trying by actual experiment whether arsenic (which essentially cumulative poison enters nto Scheele's Green in combination with the corrosive poison of copper) does or does not pass from the soil into the tissues of plants. As a case in point, and recorded in the transactions of the Royal Dublin Society, I may mention that my cousin, Mr. John G. Rathbone, found that some sheep on a farm of his, four miles from Dublin, were diseased from eating turnips, which had been manured with superphosphate of lime. Analysis showed that a mineral poison (which I am almost certain was arsenic) had made its way from the superphosphate to the turnips, and thence to the sheep. It may be worth while stopping the dreaded beetle even at the hazard of a partial poisoning of frontier farms; but still it is worth determining by actual experiment whether either of the two poisonous elements in Scheele's Green can pass into the tissues of a plant.

Any one having a green-house or hot-house could transplant some rooted plants into a box manured with Scheele's Green, and then in the spring analyze the leaves and roots of the plants. The presence of arsenic, even in very small quantities, would show itself by the usual delicate tests.

W. E. HAMILTON,
Marbleton, Eastern Townships.

OSAGE ORANGE:—A "Subscriber" sends a sprig of a shrub grown by him from seed, and wishes to know the name of the plant. It is the Osage Orange, used as a hedge plant in the western United States, but too tender for Canada.

EDUCATION.—In reply to the enquiry of G. H., we refer him to Mr. A. Smith, V.S., Temperance Street, Toronto, who will be able to give him all necessary information respecting the Veterinary College.

LEACHED ASHES may be applied with advantage to any land, but probably with more effect on sandy soils defecient in potash. As a top dressing to meadows the effect is permanent and immediate. If used on wheat crops it has been found to cause a tendency to rust on account of the rank growth produced; but the best use to which the ashes can be applied is probably to sprinkle a thin coating over the potato sets, after dropping in the hill or furrow. In the western part of Canada there are great quantities used for this purpose.

WORMS IN HORSES.—"Bridgewater" is informed, in reference to the case he mentions, that a convenient and useful remedy for the removal of worms in horses is one ounce of oil of turpentine, mixed with four ounces of linseed oil, to be given for two mornings in succession.

TEETH A TEST OF AGE.—"Subscriber" asks, "Is it uncommon for Merino shearling ewes to have four broad teeth? or, in other words, do cases occur in which Merino (or other sheep) have four broad teeth when only one shear?" The number and development of the teeth are among the surest and most constant marks of the age of any animal, but like all other signs, are liable to variation. Some animals grow faster and mature much earlier than the average of the same species, and all writers on the subject refer to exceptional instances in regard to the appearance of the teeth. Randall says, "There is sometimes a variation of a number of months or even a year in the development of the teeth. High kept and rapidly grown sheep acquire their second teeth much earlier."

The Canada Farmer.

TORONTO, CANADA, NOV. 15, 1870.

The Harvest of 1870.

The crop reports for the present year of the districts through which the Grand Trunk railway passes have, as usual, been published, and although these accounts cannot be taken as complete, or positively accurate, yet they furnish data from which to judge of the character of the harvest in those districts, and give at least the general impression of farmers in the respective neighbourhoods in regard to the crops. It is very desirable that some reliable information on this important subject could be annually obtained and given to the public. The threshing machine is, after all, the best test of the actual yield of grain, and perhaps, the most feasible plan of collecting accurate statistics respecting the yield of cereal products would be to obtain from each man who owns a threshing machine a return of the average production of the locality in which he has carried on his operations during the season. A pretty close estimate could thus be gathered very soon after harvesting was over, not, indeed, of the total amount of grain raised, which could only be known at the end of the season, when threshing was completed, but of the average amount in proportion to the acreage sown. Such a return would often be very wide of the calculations made, in the usual manner, from the appearance of the standing crops, or the bulk of the straw. In the absence, however, of more certain means of forming a judgment, we must be thankful for such aids as are furnished by the reports which the railway companies are able to give.

These returns are, on the whole, somewhat less bright than we anticipated at an earlier period of the year, and seem to show a considerable falling off, at least in the staple grain. The report is divided into three sections, referring to the several portions of the line of railway, namely, the Goderich district, extending from Goderich to Fort Erie; the Western District, from Detroit to Toronto; and the Central (which so far as Ontario is concerned may be called the Eastern District), from Toronto to Montreal. The annexed table gives a summary of the reports from the various stations, showing what crops are reported in each as having been average, or under, or over the average yield:—

GODERICH DISTRICT.

	Average.	Under Average.	Over Average.
Wheat, Fall	3	12	0
" Spring	3	12	0
Barley	10	4	1
Oats	4	0	11
Peas	11	2	0
Hay	1	2	6
Roots	2	1	11
Potatoes	2	1	12

WESTERN DISTRICT.

	Average.	Under Average.	Over Average.
Wheat, Fall	17	11	0
" Spring	13	11	2
Barley	17	2	5
Oats	5	2	21
Peas	10	5	1
Hay	3	2	5
Roots	2	7	18
Potatoes	5	4	14

CENTRAL DISTRICT.

	Average.	Under Average.	Over Average.
Wheat, Fall	11	14	0
" Spring	12	22	0
Barley	19	16	1
Oats	14	10	9
Peas	18	6	3
Hay	7	20	0
Roots	7	14	9
Potatoes	12	6	12

From the above statement, it will be seen that the condition of the wheat crop has been most unfavourable in the Goderich district—a large proportion of the stations reporting the yield of both fall and spring wheat as under the average; while in the Western District the greater numbers report an average; and the Eastern stations again give a larger proportion of returns under the average. Barley is reported almost uni-

formly as an average crop, and the same may be said of peas. With nearly equal uniformity, the yield of oats is reported as having been very large. The chief exceptions to this are in the Eastern Districts, where in some cases the crop appears to have been light. In the same sections of country, also, hay has been a poor crop, while in the Western and Goderich Districts, the returns, where this crop is mentioned at all, are mostly very favourable. The Eastern country is also the only one that gives an unfavourable view of the root crops, which in other parts of the Province appear to be unusually abundant. But while the general yield of potatoes is large, the appearance of rot in some places may seriously diminish the available amount of this crop. The prevailing wet weather, in the Western country more particularly, has interfered with the curing and harvesting of hay, and much of it has been housed in a damaged condition. While rust has been somewhat complained of, the injury inflicted by insects has been much less than in former years. Indian corn, where it has been grown, has yielded an almost unprecedented return, and the experience of the past season will, no doubt, encourage the growth of this valuable crop to a greater extent than heretofore.

Altogether, though in some kinds of field, produce there has been partial failure, yet there has been a compensatory productiveness in others, and farmers have great cause for thankfulness in view of the general result of the year's operations.

Canadian Phosphate of Lime.

We learn from the *Chemical News* that at a recent meeting of the Glasgow Philosophical Society, Mr. W. R. Hutton read a very interesting paper on "Canadian Phosphate of Lime, and some other Mineral Phosphates now used in making Superphosphate of Lime." The following is a concise summary of the more salient points of the paper:

The author mentioned that many mineral compounds, having different characteristics and results when operated upon, are now used in the manufacture of artificial manures; and referred to the fact that agriculturists are annually making greater demands upon the manufacturers of phosphate of lime. He stated that, in general terms, the value of a mineral phosphate depends upon the percentage of phosphoric acid contained in it; but if there is any marked quantity of carbonate of lime present, the value of the phosphoric acid is much reduced, owing chiefly to the large quantity of sulphuric acid required to decompose the carbonate of lime before the phosphates can be reduced. The same remark holds true with reference to phosphatic minerals containing iron compounds in combination; the iron takes up its own equivalent of sulphuric acid, and as it is per-oxidised a compound is formed which is positively injurious to plant life. Fluoride of calcium is also invariably found in phosphatic minerals, and it, too, requires sulphuric acid, thus increasing the cost of superphosphate formed, while the gaseous fluorine compounds set free are a source of annoyance. No mineral phospate has been so extensively employed as coprolites, and none is so little understood and valued by agriculturists.

After referring to the origin and nature of coprolites, and the extent of the deposits in Cambridgeshire, Bedfordshire, and Suffolk, from which upwards of 200,000 tons are annually raised, the author proceeds to speak of the necessity for additional sources of mineral phosphates being resorted to, and new deposits being brought within the reach of manufacturers of manures, even if brought from other countries. He spoke of the German and Spanish phosphates as being very extensively had recourse to, although not so valuable as the English coprolites. Reference was made to a large and valuable deposit which occurs in South Carolina, and which has recently been brought into notice. Mr. Hutton mentioned that he was supplied some months since with specimens of phosphate of lime from Canada, obtained from the face of the material nearly fifteen feet in width, and presenting, so far as yet examined, an excellent supply of raw material. The samples differ very much from those phosphatic minerals which are now in use, and seem to indicate that if a sufficiency can be obtained, the Canadian mineral will be welcomed by manure manufacturers. Some of the specimens sent were distinct six-sided prismatic crystals, while the other pieces were in masses; but both crystals and masses had a vitreous lustre, the colour on some parts being green and bluish-green, and in other places red.

It is not stated from what part of Canada the specimens of phosphate of lime came that were subjected to analysis, but it is well known that the mineral is to be found in different localities, and in great purity and abundance in the counties of Leeds and Lanark, in the province of Ontario. In a physical point of view it is said that this Canadian phosphate differs from all others in being crystalline and not granular; while it differs chemically in containing more phosphate of lime and less carbonate of lime and sand. It is much to be desired that these resources of Canada should receive the attention which their importance demands, and be turned, as soon as possible, to a practical account.

SHORT-HORN SALE.—As will be seen by the announcement in our advertising columns, Col. Taylor will sell by auction some of his choice short-horn cattle, on the 22nd of the present month. The lot offered comprises the beautiful yearling bull "Proud Duke," bred by J. O. Sheldon, of Geneva, six cows, in calf to "Proud Duke," and three heifers,

Notes on the Weather.

The fall season, especially during the past month of October, has been unusually pleasant and favourable for such garden and farm operations as remain to be performed. Grapes, apples, and other later fruits have fully ripened, and ample oportunity has been afforded for securing them without a touch of frost; while field roots have been equally favoured in the season. He must be an incorrigibly procrastinating farmer who suffers himself to be caught this year, as many were last fall, by the occurrence of frost, before his potatoes and turnips are all safely gathered, and pitted or housed under cover. It is not often that a fall season so genial and prolonged as the present is experienced in Canada. The farmer has cause to add this to the many grounds for thankfulness which have "crowned the year."

The speciality of the weather, the character of which has been pretty uniform throughout the Province, has been its unusual warmth. We learn from the records of the Toronto Observatory that the average temperature of the month of October has been 50°, which is 4° 36 higher than the average for the month during the last thirty years, and 7° 71 warmer than October of 1869. The highest temperature, 68° 5, occurred on the 1st, which was also the warmest day, with a mean temperature of 60° 4. The lowest temperature was 30° 2, on the 19th, the only occasion on which the thermometer fell to the freezing point. The lowest mean temperature for any day was 38° 8 on the 26th.

The amount of rain-fall has been slightly above the average; rain having fallen on fifteen days to the extent of 2·690 in. The amount of cloudiness has closely approximated to the average. There were fifteen days clouded, eleven partially so, and five clear.

Westerly winds have prevailed, though there has been considerable variation in this respect, and the month has been marked by the occurrence of more than one violent storm, which caused serious disasters on the lakes, and some damage on land. The most severe of these was on the night of the 30th.

The most exceptional and extraordinary occurrence of the month was the earthquake, which affected a large portion of Canada, as as well as the United States, on the 20th. The aurora borealis has been frequent and brilliant. Altogether the month of October has been in many respects a remarkable one.

PROVINCIAL EXHIBITION PRIZE LIST.—We publish in another part of this issue a list of the award of prizes at the late Provincial Exhibition. The list has been carefully revised and corrected under official authority, and will be found a reliable record for future reference.

Entomology.

Entomological Gleanings.

BY W. SAUNDERS, LONDON, ONT.

With a fruit farm in the country frequently visited, and a fruit garden in town, my opportunities for observing the times and doings of insect foes and friends are sufficiently ample to satisfy the desires of the most active and enthusiastic "bug-hunter" that ever carried a net. Now a swarm of caterpillars disfigures the form and mars the beauty of a handsome tree, by consuming a considerable part of its foliage; again a host of aphides, by their constant sucking of the juices of the leaves, will cause them to shrivel, curl up, and often change colour, and the enormous rate at which these creatures increase adds much to the difficulty of their extermination; or some unwelcome "little Turk" sits down uninvited to feast on our finest fruits, and, not satisfied with appeasing its own appetite, leaves its progeny behind to complete the work of destruction; or it may be some rascally borer insidiously undermines one's fondest hopes by girdling and thus destroying trees or shrubs whose growth has cost years of toil and watching. With the desire of helping fellow fruit-growers and others to a better acquaintance with these expensive insect guests, I propose in this, and probably some subsequent papers, to record observations made from time to time as the season advances.

On the 6th of May the first foe was met. A lot of dwarf pear trees arrested attention from the backwardness of some as compared with others, the unequal way in which the leaves were expanding, and the dark colour, almost black, of some of the buds and younger leaves. No caterpillars were to be seen, but on jarring the trees down came the enemy to the ground in considerable numbers, partly falling, partly flying. It proved to be a small bug, belonging to the tree bug family, *Hemiptera*, and a species named *Phytocoris (Capsus) linearis*. I never remember having seen this creature doing damage before, so a careful examination of its work was made. Our foe "linearis" is not a "big bug;" it does not measure more than one-fifth of an inch. It is rather variable in colour, from dull dark brown to greenish brown, or sometimes dirty yellowish brown. The males are usually darker than the females. The head is yellowish, and has three narrow reddish stripes. The beak or sucker is about one-third the length of the body, and when not in use is folded under the breast. The thorax has a yellow margin and several yellowish lines running lengthwise. Behind the thorax is a yellow V-like mark, sometimes more or less imperfect, but usually sufficiently clear to help one to a ready recognition of the species. The wings are a dusky brown, and the legs of a dull, dirty yellow.

This enemy ensconces himself within the young leaves of the just opening buds, puncturing them about their base and along the edges, and extracting their juices with its beak. The result was to disfigure and sometimes entirely destroy the young leaves, causing them to blacken and shrivel up. They were also somewhat partial to the unopened buds, piercing them from the outside and sucking them nearly dry, when they also withered and blackened. Sometimes a whole branch would be thus affected, becoming first stunted, then withered, next dead. Dr. Harris, in his "Insects Injurious to Vegetation," mentiones this bug as occurring in Vermont in large numbers in 1851, attacking almost every green thing and doing a great amount of mischief throughout the summer. In our own case they disappeared in about a fortnight, but left the trees in a very dilapidated state. Press of other work prevented any remedies being used. Probably a solution of soft soap or dry unslacked lime would have lessened their numbers.

On the 10th of May I was astonished to see the young larva of the gooseberry sawfly, *Nematus ventricosus*, commencing its depredations on the freshly expanded leaves. This was nearly a month earlier than its usual time of appearing, the leaves having expanded about three weeks earlier than usual. On examining the under side of the eaves rows of white eggs were found in abundance in different stages of development. Those newly deposited were very much smaller than the others, and appeared to be but *slightly* attached to the surface, not let into a slit made in the leaf by the female, as is commonly supposed; at least I could find no traces of such an operation, although I examined them carefully with a microscope. The gooseberries were now in full bloom. In the second volume of the "Canadian Entomologist," p. 16, and also p. 48, an opinion is expressed that a cocoon of this insect found freshly made on the 29th of May was the work of larva which had wintered over. The observations made this spring do not in any way upset this idea, for the carliness of the season will account for the apparent discrepancy. They will certainly prove very troublesome this season, they are so very abundant, and now, at the last of the month, when many of the full-grown larvæ have gone into chrysalis, freshly aid eggs or larvæ just hatched may be found on almost every bush. Remedy—patience and plenty of hellebore, an ounce or two to the pailful, and shower lightly on the bushes with the watering pot.

There is a small caterpillar, a leaf-roller or case-maker, which is very troublesome. It probably passes the winter in the caterpillar state, for almost as soon as the buds begin to burst it begins its mischievous operations, and when first observed is not usually more than half grown. It is a very small thing even when full grown, being then half an inch in length, with a small shining black head and a dirty brown-coloured body, with a few small brown dots and fine hairs scattered over its surface. Its tenement consists of a dried-up, blackened leaf, portions of which are drawn together so as to make rude case, the centre part of which, where his highness resides, is lined with silk. It is very fond of going just where you do not want it. It is partial to the blossoms and newly-formed fruit. If you have a new pear or apple fruiting, with a single bunch of blossom on it, which you are anxiously watching, by-and-by you find that several of the blossoms have set, and while you are flattering yourself that they are doing well, along comes this mischief-maker, pitches his tent alongside this very spot, and drawing the young fruit together with silken threads, holds high carnival among them and frustrates your hopes. Another of its tricks is to gnaw a hole into the top of the branch from which your bunch of blossom issues, and, tunnelling it down, cause the whole thing to wither and die. Often it contents itself with damaging the leaves only, and this one does not mind so much, drawing one after another around its small inside case, until it forms quite a little belt of withered and blackened leaves.

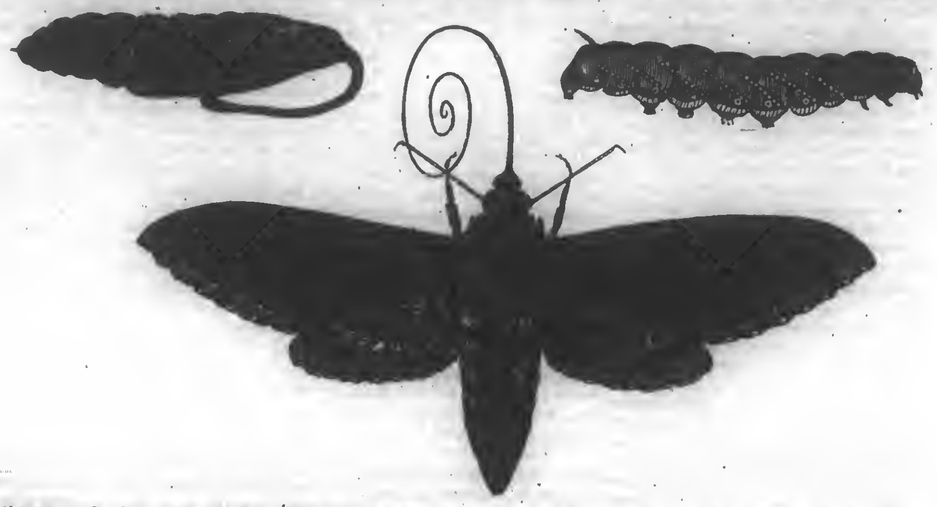
Hand picking is the only remedy suggested for these, unless you can employ small birds, such as sparrows, in hunting them up for you.

The moth which this caterpillar produces is rather a pretty little thing. Its name we are not yet able to give. It measures, when its wings are expanded, about half an inch. Its fore wings are greyish brown, with a shining white, almost silvery band across the middle, widest on the front margin. The hind wings are plain pale blue, and both are prettily fringed with fine brown hairs, those on the hind wings longest. It appears on the wing from the middle of June until the early part of July. It probably lays its eggs on the leaves, and when the young worms appear, which is most likely early in the fall, they make their small inner silken case, and, attaching themselves to some part of the tree, remain unobserved, and in this condition probably winter, awakening to new life and energy with the opening spring.

CATERPILLAR ON APPLE TREES.—Miss J. S. K., Cookstown, Ont.—We regret very much that the specimen you sent us some little time ago has disappeared without affording us an opportunity of examining it carefully. It was sent at a time when the editor of this department was in the midst of the operation of moving from his former residence to Port Hope. No doubt it escaped or was lost in the confusion and disarrangement that unavoidably take place at such times. We beg that our correspondent will accept our apologies for the mishap.

The Potato Sphinx.

Mr. James Howett, of Uxbridge, has sent us a specimen of the chrysalis of the Potato Sphinx (*S. quinquemaculata*, Haw.) which he recently found when digging potatoes. "It was about three inches under the surface in a piece of apparently solid clay, with a hole inside about twice as large as itself; another was found in a different part of the field, but was accidentally cut in two by the hoe." This chrysalis is so very remarkable in shape that it may well excite the curiosity of those who meet with it. It is about two and a half inches long by half an inch in thickness, of a chestnut-brown colour, and round in shape, tapering towards both ends; from one end, which is the head of the speci-



men, there proceeds a long curved proboscis, like the handle of a jug; the other end is divided into broad rings, and terminates in a point. The caterpillar which has turned into this creature is no less than the terrible "Tomato worm," about which one hears so many marvellous stories, and in whose supposed poisonous properties we have not the slightest faith. It is usually of a dull green colour, with yellowish-whits oblique stripes on each side of its body, and a sharp thorn-like tail; sometimes, however, its colour is bright sea-green with flesh-coloured stripes; and sometimes dark brown, or even black, with yellow stripes. It feeds upon the tomato and potato, devouring a large quantity of leaves, but seldom being numerous enough to inflict any appreciable damage upon such rank-growing vegetables. This chrysalis, if it meets with no misfortune, will turn next summer into a large handsome greyish moth, with five bright yellow spots on each side of its body; its wings expand five inches, and its body is the same length as the chrysalis; it is furnished with an enormously long tube or tongue, through which it imbibes the nectar of flowers, and which, when not in use, is coiled up into a very small compass under the head, like a watch-spring.

The accompanying illustrations represent the insect in its three stages of caterpillar, chrysalis, and moth, and will afford the reader a better idea of its appearance than any length of written description.

The Slug on Pear and Cherry Trees.

"The insect generally called the pear or cherry tree slug (*Selandria cerasi*, Peck) has in our grounds been so few and so little injurious this season that we had almost forgotten to notice it, until, passing the orchard of one of our neighbours a few days since, we saw his pear trees almost entirely denuded of their foliage by reason of the slug. It is a little singular that any cultivator can neglect to guard against such results, when merely dusting the foliage with lime, plaster, or even the ordinary dry soil, will at once destroy the insect. The first brood is now about over, but a second one may be looked for from the fifteenth to the last of August, and they should be carefully watched for and destroyed by all who wish health or vigour to their young pear or cherry trees."

The above is from a correspondent of the *Journal of Agriculture*, who writes over the signature of "Addi," and whose articles abound in common sense, and are usually very correct; but in stating that the Pear and Cherry Slug can at once be destroyed by ordinary road dust he has made a very pardonable error, and has been deluded either by hasty observation or by the unreliable testimony of others.

Though not very troublesome in the West, this insect often does much damage in the more eastern States, and it has this year absolutely stripped many orchards of every vestige of green along the line of the Michigan Central Railroad, leaving nothing but the sere and yellow leaf robbed of its parenchyma. We found that the popular remedy was sand, there being an abundance of this commodity along the lakes; but, as our friend Mr. Wm. Saunders, of London, Ontario, has abundantly demonstrated, and as we have ourselves proved, simple sand does not kill. It sticks to Mr. Slug, so that he frequently falls to the ground, and thus it appears to kill him, but he very soon manages to divest himself of his sand-covered coat. In fact, he naturally sheds this coat several times during his growth, and if the sand is applied at the proper time it proves a positive advantage to him, by stiffening his old and useless skin, and enabling him the better to crawl out of it. If it be applied a day or two before the proper time to moult has come, then, like a good philosopher, determined to make the best of the circumstances, he concludes with some reluctance to let the soiled habit go before it is quite worn out. Common road dust is equally harmless, and even plaster will prove ineffectual, unless applied before the last moult takes place, for after this moult the slug bids adieu to his slimy coat,

Moral—Never use sand or road dust for the Cherry Slug, but rely on lime, which will burn through the skin to the flesh, or on white hellebore water, which will poison.—*American Entomologist and Botanist.*

The Dutch Doctor's Insect Remedy.

Fifteen years ago, at a horticultural meeting, when the curculio question came up, I asserted in broken English that the curculio was a tevel (a plum divel,) and will eat fruit. First the plum, then the apricot, nectarine, peach, and the apple, and I will add that since then I have observed that they work on the pear and cherry. My recommendation as a remedy was then, and is now, the German Sparling or Spatz, a small bird that builds its nest on houses, barns, and in willow trees, near the road sides. Often and again I have spoken about the importation of these birds; but my advice was not heeded. If I was a female preacher, a travelling temperance medium or an office seeker, my good advice would have been noticed, and we should now have less to suffer from the pest of curculios. The importation of these birds would not cost much. A good way to introduce them would be for the State Agricul. tural Society to appropriate five hundred dollars, and each county society fifty dollars, to be used for the importation of these birds. Then we could secure hundreds of them, to be set at liberty in each county of the state. Simple structures which would afford shelter, erected on poles, or nesting places could be fixed under the eaves of the barn or outbuildings; these places would be accepted by the birds.

Those birds should be given most to the German farmers at first, as I believe the birds would feel most at home where they could hear the Dutch language talked, and see more the way of German living. I am of the opinion that when American birds can hear music and song they will become better singers—observation has taught me this. Now these Sparlings are house birds, and stay only where man lives, and on that account would always be near our orchards. They are used to insect food, but will eat fruit as well. One thing must be kept in mind: these birds, used to animal food to satisfy their appetites, seek for insects in the winter in their hiding places, and eat the egg deposit found on the limbs and on the fallen leaves, and such as is hidden under bark, or glued to the limbs, and by this means prevent the great increase which would follow from permitting the insects to escape, or the eggs to hatch.

My hints, made many years ago, are, by many correct thinking men, both at the east and west, being adopted, and the birds are being introduced into several states, and many are about to continue the good work. But, my friends, do not wait or stop after you have read these lines, but go to work at once, immediately give this article a spread all over our happy large country, for every paper may copy this, and thereby become a public benefactor. Talk to benevolent men, to all your societies, particularly to all horticultural and agricultural lecturers who speak at fairs. Collect money this fall and send a good man to Germany to get a large number of these good, God-blessed birds. During the summer they hatch every few weeks, five young at a time; and in a short time would become so increased as to give our children good sound fruit and a plenty of it.

My word for it, if you do not import these birds, the curculio, the caterpillar, the bark louse and other insects will so increase as to destroy, not only your fruits but your nurseries and your trees. Already our nurseries are full of insects, and if not checked, in a few years more it will be hard to find a sound tree in the great west.

All our curculio catchers and remedies are of no great benefit, if my neighbours use all these destroyers and I lie on my back and do nothing; as in that case I should raise the insects, and they might catch until doomsday, and I and others who do nothing would keep them supplied. To make a law to force me to destroy my insects would be oppressive, and will never be done. But my birds may be your birds, the country's birds, the protectors and angels over all our fruits. Will you hear more? From your friend,

DR. H. SHRODER.

Bloomington, Ill.

It is, we think, a conceded point that a man who originates an idea is best qualified to carry out and perfect it. Hence we hope Dr. Shroder will introduce his favourite birds, watch them carefully, and report the first one he detects catching a plum curculio. —*Prairie Farmer.*

Entomolgical Queries and Replies.

Insect Specimens.—The insect enclosed in a letter sent by a subscriber from Esqueseing was not to be found when the letter reached us. All such specimens for identification should be sent in a pasteboard box or some such receptacle, and not loose in a letter.

Walking-Stick Insect—J. Wyllie, Ayr, Ont.—The curious insect you sent us, resembling a thin stick with slender legs, is a specimen of the Walking-stick Insect (*Diapheromera femorata*). We have received quite a number of these creatures this year, and have already given several notices of them in our columns.

Pea-weevil (*Bruchus pisi*, Linn.)—An enquirer in Toronto has sent us some peas hollowed out by an insect, and desires to know "what the insect is, and how it got there." The creature is the notorious Pea-weevil (*Bruchus pisi*, Linn.) It got into the pea by the simple process of eating into it when it was a tiny newly-hatched grub, and when the pea was young and tender. It made a very minute hole in order to get in, which very soon closed with the growth of the pea, and kept the worm snugly enclosed and hidden from view. Here it grew with the growth of the plant, eating away the mealy part of the pea, until at length it assumed a pupa state, and finally, when the pea was ripe, turned into a beetle, as in the specimens before us. In this state it would remain all winter if left undisturbed, and next spring would set about its work of propagating its kind by laying eggs in the fresh pea-blossoms. Our correspondent will find a further account of this curious insect, and illustrations of its different stages, in the Canada Farmer for April, 1870, p. 137.

Specimens for Identification.—D. M., Mimosa, Ont.—No. 1. The larva found on a shrub in a marsh, with a large number of parasitic cocoons attached to it, is a Sphynx caterpillar, not the larva of an Emperor Moth. Being dead, we cannot determine its exact species. We have never before seen a larva with so enormous a number of cocoons attached to it, though there are generally a surprising number for the size of their prey. No. 2 is the chrysalis of the American Vapourer Moth (*Orgyia leucostigma*, Smith and Abbott) covered with two or three hundred eggs, from which would come out next spring, if not interfered with, a corresponding number of very pretty caterpillars. They are, when full grown, over an inch long, of a bright yellow colour, with thin yellow hairs along the sides of the body. The head is bright coral red; the next segment has two long pencils of black hairs projecting forwards, and the last segment but one a single similar pencil pointing backwards; on the fourth and three following segments there are some short brush-like tufts of yellowish hairs; and on the ninth and tenth two little coral-red knobs or warts. These caterpillars feed singly on the leaves of the apple and many other trees, and sometimes they are so numerous as to occasion a considerable amount of damage. The male moth has broad ashy-grey wings, which expand about an inch and a quarter; the front pair are marked by a whitish crescent-shaped spot at the lower corner; the female is remarkable for possessing the merest rudiments of wings, and looking like anything but a moth; she always lays her eggs on the outside of her cocoon, as in the specimen you sent us. No. 3. The beautiful metallic coloured beetle that you picked off the road is a specimen of the Divaricated Buprestis (*Dicerca divaricata*, Say). Its larva is a white flattened worm, with a broad, almost square, flat head; it bores into the wood of beech, cherry, and other trees, resembling in its habits and appearance the notorious apple-tree Buprestis Borer. No. 4 is an extraordinarily shaped beetle that is quite abundant in old fungus, at the bases of trees and on decayed logs. It is called the Horned Fungus-eater (*Boletophagus cornutus*), the former name from its mode of life, the latter from its adornment with a pair of strangely-shaped horns that project over the head. It is certainly, as you say, an ugly customer, though perhaps more curious than really ugly.

Apiary.

Bee-Hives.

To the Editor.

Sir,—On perusing The Canada Farmer for October, I find some remarks on bee-hives exhibited at the late Provincial Exhibition, and I think it no more than just to make a few explanations on different points.

The wire screen in the bottom of my hive is *not* a drawer for catching the moth dirt. I have not been troubled with moth of any account. "Cleanliness and no moth-traps" is my motto. The wire screen in my hive is for keeping the bees in when the hive is ventilated, and keeping the moth out; it also allows all clippings and moth eggs to pass through, lodging on the bottom board, which can be drawn without in any way disturbing or interfering with the bees. The screen is to be drawn in the winter, and placed over the honey-boards, making perfect ventilation, all dead bees and drip can be removed from time to time from the bottom-board.

The "New Dominion" bee-hive is on a different principle from other hives now in use; it is a hollow-walled hive without the expense of double boarding. The frames form the inner wall, resting on sills, and folding back and forth. They can be removed and replaced without killing any bees. A thorough examination of the hive will satisfy the most skilful bee-keeper of this fact.

B. LOSEE.

Cobourg, Ont., November.

Note by Editor.—Our correspondent says his wire screen in the bottom of the hive is to "keep the moth out;" and also that it allows clippings (of comb?) and moth eggs to pass through, lodging on the bottom-board, which can be drawn without disturbing the bees. We fail to see that the reporter was far astray in calling this a moth-trap, or drawer for catching the moth dirt, etc. Clippings are "dirt," eggs make "moths," and the bottom-board draws out, evidently for the purpose of cleaning it of clippings and moth eggs, and may very properly be called a drawer. The principle of a hollow wall formed by the frames forming the inner wall of the hive is not new, as Mr. Losee thinks, but has been in use for many years, and is in use now in the United States by a few, though rejected as inconvenient by most bee-keepers. A hive so constructed was exhibited some four years ago at the Michigan State Fair.

If colonies are moved in the line of their flight, and *a short distance only at a time*, no loss of bees will be incurred.—*Langstroth.*

After-swarms usually build the most regular worker combs; and if they lay up sufficient stores for the winter, they generally make the best stock colonies.

Agricultural Intelligence.

Agricultural Shows in West Northumberland.

West Northumberland.

This county society held their show at Cobourg on Tuesday and Wednesday, the 18th and 19th Oct. The weather was favourable, though the severe storm of the night of the 17th doubtless prevented some from being present. The indoor departments of the show were held as usual in Victoria Hall, while the cattle and implements were shown in a field adjoining the Drill Shed.

Horses.—There was a good show in this class: mares and foals, young horses, farm teams, carriage horses, etc.; the principal exhibitors being Williams, Mulholland, Winters, Westington, Isaacs, Beatty and others. The show of Durham cattle was good, some very promising young stock being shown. Messrs. Isaacs, Wade, Westington, Defoe, and Beatty were the chief exhibitors. The show of Ayrshire cattle was also very good. The prizes in this class went to Messrs. Pratt, Newton, Wright, and Wade. The show of Devons and Galloways was small. In the former class Messrs. Mason, Lacy, and Pratt divided the spoils, and in the latter Messrs. George and William Roddick The show of Grade cattle was good, some very fine milk cows being shown. In this class most of the premiums were awarded to Cullis, McEvers, and Smith; in working oxen to Blizard, McDonald, and Winters.

There was a good display of long-woolled sheep, the flocks of Lean, Cullis, Pratt, Westington, Reynolds, Harper, Craig, and others being fully represended. There was about the usual show of fine-woolled sheep. In Merinoe the specimens shown were from the flocks of Hinman and Spears; in Southdowns, from those of Bourn and Eagleson; and in Cheviot, from those of Elliott and Carruthers. In Pigs and Poultry the show was about as usual, not very remarkable either for numbers or quality.

The display of Implements was rather larger than usual. The show of Grain was good, though scarcely as large as it was some former years. The fall and spring wheat was of very fine quality. Barley and peas were also very good; oats were hardly of as good quality as last year. The present seems to have been a favourable season for corn, as some particularly fine samples were shown. The first prize was awarded to an eight-rowed yellow, and the second to an eight-rowed white corn, the ears in both cases being remarkably long. The root department was well filled, and the quality in almost every case all that could be desired. The potatoes, turnips, carrots, mangles, etc., shown would have been hard to beat anywhere. There was a large and fine show of butter, both in kits and rolls. Two lots of Factory cheese, and several lots of home-made, all good.

The show of fruit was much smaller than usual, which is rather remarkable seeing the season has been favourable for fruit, and the crop of apples is plentiful and of fine quality in the country this year. Perhaps *every* person thought every *other* person would be there with good fruit, and concluded that he would bring none.

In Domestic manufactures and ladies' departments, the show was about as usual, the articles being all good and "too numerous to mention."

The total number of entries exceeded 1,100.

Hamilton.

The annual fall exhibition of the Township of Hamilton Agricultural Society was held at Cobourg on Tuesday, the 11th Oct. The morning was very wet, which doubtless prevented many from being present. The show of horses was on the whole good; some good mares and foals and young stock, with some fine spans of carriage horses and single buggy horses were on the ground.

In cattle, there was a good show of Durhams, Ayrshires, and Grades. No Galloways and few Devons were shown. There were upwards of a hundred head of cattle on the ground. In Sheep, the long-wools made a fine display. In the aged ewe class eleven pairs were shown, all worthy of a prize. There was about the usual number of pigs and poultry shown, of fair quality. The grain, roots, ladies' department, etc., were shown in Victoria Hall. In Grain and Roots the show was uncommonly good, the quality in some cases far surpassing that of the same articles in the late Provincial Exhibition. The dairy department was also very good. There was a considerable falling off in fruit, and also in the ladies' department. What was shown was good, but there was not so much of them as usual. The show of implements, though not extensive, was somewhat larger than usual.

Township of Haldimand.

The Haldimand Township Agricultural Society held their annual exhibition at Grafton on Wednesday, the 12th October. The forenoon of the day was very fine, but a few showers in the afternoon made the show not quite so pleasant. This society has one of the best show-grounds in the country. On the north of the village on a fine knoll, well fenced in, with the drill shed near the middle, with suitable sheep and pig pens and a horse track and ring for judging the cattle. The drill shed amply accommodates the grain, roots, ladies' department, etc., while all the stock is on the ground around. The show was on the whole good, though not quite equal to some former ones. In the Horse classes there were some good mares and foals shown, also some very promising young horses. The teams shown for farm work were very good, the carriage and buggy horses middling, and in regard to those

shown for saddle horses,—well, the less said the better.

The most noticeable feature in the Cattol department was some fine young Durham cattle, imported this season by Mr. George Isaacs of this township, from Aberdeenshire, Scotland. They promise to be a great acquisition to the live stock in this section. There was a fair show of sheep and pigs. The show of grain and roots was good, so far as it went, but there was not near the quantity of them that this township ought to, and can show, if the farmers choose. In dairy products, articles of domestic manufacture, and ladies' department, the show though not very large, was good. The show of fruit was both large and good.

The close of the show was somewhat diversified by the presentation by the members of the society of a beautiful silver inkstand and gold pen to their worthy secretary and treasurer, Josias Gillard, Esq., who for the last twenty-one years has discharged the rather onerous duties of these offices to the satisfaction of the society. A well deserved present, alike honourable to them and him.

Halton County Fair.

This fair, held at Milton Oct. 10th and 11th, proved very successful so far as entries of stock and attendance went. Fully five thousand of the yeomanry of the county, with their wives and families, were on the grounds on the 11th, the opening day of the fair. In horses the show was an improvement on former years, both in numbers and quality. There seems to be an advance towards using a heavier class of stallions, more suited to getting stock adapted to work the strong heavy soils of this county. The farmers' teams shown were fine heavy horses. Of cattle there was a fair show in Short-horns and grades, but nothing else. Some good animals were to be seen, but the decisions of the judges in awarding the prizes were evidently based upon a want of knowledge, or showed partiality, as some of the prize animals were much inferior to others that were passed over. The sheep classes were well filled, and some fine ones shown in the Leicester and Cotswold classes, though none of them can be considered full bred. They were larger than usual, and as there was a class for cross-bred sheep, many who had taken prizes, as in the other classes, showed animals in this from the same flocks, and got a double recognition of merit. The pigs were quite up to the mark, the large breeds seeming to preponderate, though in reality many of them were cross-bred. Of grain there were forty samples, and all of them first class. A good show of butter and cheese was made, but as the judges never tasted a sample, we should like to know on what principle they acted in awarding the prizes. The show of roots and vegetables was inferior, but that of fruit was large and fine.

Galt Sheep Fair.

The Galt Sheep Fair was held Oct. 14, in the grounds belonging to the Queen's Hotel, and a large crowd of people were present. About 300 sheep, of which 200 were rams and ram lambs, were brought in to the fair, but owing mainly to the lateness of the season, and it being a first attempt at inaugurating annual sales of this description, and consequently not yet known much outside of the neighbourhood, the competition for animals was mainly confined to the local buyers, there being only two or three from the United States present. The animals brought in were chiefly of the Leicester breed, with a few Southdowns, and taking them in all, we have never seen a finer lot of sheep brought together in Canada. The auctioneer commenced at 1 p.m. with a lot of Leicester ram lambs from the flock of Peter Marshall, South Dumfries. These went off briskly at from $10 to $30 each. Some ewes sold at $12 to $20 per pair. Several lots from other breeders went for low prices, till those of Alex. McPhail, North Dumfries, came in. They brought fair prices—averaging about $12 each for ram lambs, and $14 to $20 per pair for ewes. Next came a splendid lot of pure-bred and very fine Leicesters, from the flock of James Cowan, of Waterloo. A few of these were sold at prices ranging from $10 to $40 each. The best being withdrawn, and the time for the train to leave having arrived, we left at 3 p.m., without waiting for any further results of sales, although there were still a large number to be sold. It is intended to have this fair some weeks earlier in future, when a larger attendance of American buyers may be expected, as they prefer using rams at a much earlier date than our breeders are accustomed to.

The *New Zealand Gazette*, published on Wednesday, July 13, states that the total number of acres under crop in 1870 was 900,504, as against 687,015 in 1869, thus showing an increase of 213,489.

The Smithfield quarterly cattle fair, held on the 10th inst., was well attended and animated. Buyers snapped at all cattle any way approaching beef: prices ranged from five to six dollars per 100 pounds.

The Alameda Beet Sugar Company, in California, has from 300 to 400 acres in beets. The machinery for the factory cost $120,000—the factory $20,000. The superintendent is A. D. Bonesteel, lately of the factory at Fond du Lac, Wis.

The owner of a threshing machine, who has done a good deal of thrashing for several years past, informs the Guelph *Advertiser* that the wheat this year yields on the average about fifteen bushels to the acre; the sample though better on the whole than last year, is not first-class, such as produced in former years.

Stringent measures have been taken to guard against the introduction of rinderpest from the Continent into Great Britain. Among other preventive measures, all cattle from the Continent are to be slaughtered immediately on their arrival at any English port.

The last monthly report of the United States Department of Agriculture states that the corn has been injured in some localities, but not enough to threaten a material reduction of the anticipated aggregate. There are complaints in regard to the cotton crop, but the general prospect is not discoursging.

The French Agricultural Societies have put off all their meetings, as the whole force of the country is required for its defence. The Paris Society of Carpenters has decided that the sum of 1000fr., destined for its annual *fete*, shall be applied in aid of the families of agricultural labourers of the neighbourhood serving in the army. It is the same all over the country.

Albion Agricultural Society.—The fall show of this society, held in the village of Bolton, on the 13th of October, was the most successful exhibition yet held under their auspices. Both in the number of entries and in the quality of the stock, as well as in the general excellence of other departments, there was a marked improvement over former exhibitions.

Foot and Mouth Disease.—We have again, says the *Veterinarian*, to report an increase in the spread of the foot and mouth disease. The malady prevails in forty-five counties of England and Wales, and ten in Scotland. The largest number of infected places are reported from Cheshire, Cumberland, Dorsetshire, Lancashire, Somersetshire, Staffordshire, and Yorkshire; the total number of centres of infection being nearly 4000. In Ireland also the disease is spreading, more especially in those districts where opposition is offered to the enforcement of the provisions of the law.

Sale of Shorthorns.—On Tuesday, Oct. 25th, an auction sale of shorthorn cattle took place on the farm of Mr. William Thomson, Markham township. The list of animals sold was made up by drafts from Mr. Thomson's own herd, to which some from those of J. S. Thomson, Whithy, and Robert and William Miller, Pickering, were added. The stock was in fine condition and sold well. Eight bull calves were offered, of which five were sold, bringing $520, or an average of $104 each. Fourteen cows and heifers were offered, and all sold, the sum realized being $2608, or an average of about $185 each. The best prices realized were $305 for "Lizzie," a light roan, from Camellia by Prince Alfred [553]; $280 for a five-months old red heifer "Oxford Maid," by Highland Chief from Mayflower; $250 for "Loretta," by Ashdale [30] from Blossom, a handsome dark roan three-year old. Hon. George Brown was the largest purchaser.

Award of Prizes at the Provincial Exhibition, 1870.

HORSES.

CLASS 1—BLOOD HORSES—26 ENTRIES.

JUDGES—George Anderson, Rednorsville; John Peters, London; and Wm. Carrick, Oban

Best thorough-bred stallion, four years old and upwards, Dr. Morton, Bradford; "Extra," imported 1870 ..... $106
2nd do, Charles Payne, Reach, "Jack the Barber" 26
Best 2 years old stallion, James Lawrence, Bradford 15
Best yearling colt, John Shedden, Toronto 10
2nd do, Nelson Yates, Scarboro', "Bill Fagan" 7
Best thorough-bred stallion of any age, Dr. Morton, Bradford, "Extra" ..... Diploma
Best mare, and foal, or satisfactory evidence that a foal has been raised this season, John Shedden, Toronto, "Julia Adams" 21
2nd do, Geo. D. Morton, Bradford, "Rose of Allandale" 14
3rd do. Nelson Yates, Scarboro', "Rosebud" 7

NOTE BY JUDGES—We regret to remark that the animals in this class were badly represented in numbers, but that the few exhibited were of superior quality.

CLASS 2—ROAD OR CARRIAGE HORSES—219 ENTRIES.

JUDGES—James Silver, Queensville; Charles Rowe, Prescott; J. H. Crawford, Drummondville; and Charles Girvin, Nile.

Best roadster or carriage stallion, 4 years old and upwards, E. W. Pitt, Georgetown $36
2nd do, Robert Thorburn, Gwelda 26
3rd do., Tench and Ellis, Drummondville 16
Best do., 3 years old, M. Keenan, Oneida 21
2nd do., Simon Beattie, Markham 14
3rd do., J. S. Lawson, Gore of Toronto 7
Best do., 2 years old, George Richardson, Vaughan 15
2nd do., James Goode, Reach 10
3rd do., James Barbour, Vaughan 5
Best yearling colt, Simon Shunk, Vaughan 10
2nd do., Isaac Carruthers, Etobicoke 7
3rd do., M. Jarrett, Vaughan 4
Best stallion of any age, E. W. Orr, Georgetown ..... Diploma
Best French Canadian stallion, Richard Wells, Aurora 30
2nd do., Adam Bowman, Nelson 20
3rd do., Richard Sylvester, Scarboro' 10
Best 3 years old roadster or carriage filly, Wm. Dryden, Galt 18
2nd do., D. Campbell, Bradford 11
3rd do., James Laurie, Scarboro' 7
Best 2 years old filly, D. Campbell, Bradford .. 14
2nd do, W. R. Telfer, Pilkington 9
3rd do., Thomas Armstrong, Vaughan 5
Best yearling filly, M. Harrison, Cooksville .. 8
2nd do., Wm. Wilson, Etobicoke 6
Best brood mare, and foal, or evidence of having raised a foal, James S. Preston, Esquesing 22
2nd do., Thomas Armstrong, Vaughan 14
3rd do, Burrell and Johnstone, Pickering 6
Best pair of matched carriage horses (geldings or mares), 16 hands and over, J. B. Carpenter, Pickering 20
2nd do., E. D Morton, Barrie 15
3rd do., Joseph Grand, Toronto 10
Best pair matched driving or roadster horses (geldings or mares), under 16 hands, W. Jinkins, Bradford 20
2nd do., J. Fiman, Barton 15
3rd do., G. J. Baker, Oakville 10
Best single carriage horse (gelding or mare), in harness, H. C. Marr, Markham 10
2nd do., A. Smith, V. S., Toronto 8
3rd do., E. H. Howard, Toronto 6
Best saddle horse (gelding or mare), Andrew Smith, V. S., Toronto 10
2nd do., M. Porter, Bowmanville 3
3rd do., Dr. Morton, Bradford 6

EXTRAS—Patrick Derham, 1st prize, $3 00; G. A. Arthurs, 2nd prize, $2 00.

CLASS 3—AGRICULTURAL HORSES—137 ENTRIES

JUDGES—Henry Snider, Bloomingdale; Thos. Rattley, Chatham; John McNaughton, Lancaster; and Alex. McLennan, River Raisin.

Best stallion for agricultural purposes, 4 years old and upwards, James Coultar, Brampton $36
2nd do. John Dixon, Weston 26
3rd do, Joseph Lehman, Markham 16
Best 3 years old stallion, James McDonagh, Colborne 21
2nd do, Matthew Hall, Oneida 14
3rd do J. E. Hunter, Pilkington 7
Best 2 years old stallion, Snider and Edmondson, Brantford 15
2nd do, Wm. Blanchard, Toronto Township 10
3rd do, Joseph Smith, Etobicoke 6
Best yearling colt, Horace Moulton, Clarke 10
2nd do, Birrell and Johnston, Pickering 7
3rd do, Duncan McConnachie, Clarke 4
Best stallion, any age, James Coulter, Brampton ..... Diploma
Best 3 years old filly, Wm. Gullist, Etobicoke. 13
2nd do, G. S. Shaw, Darlington 11
3rd do, Michael Brown, Vaughan 7
Best 2 years old filly, Robert Myles, Eupharasia 14
2nd do, John Reading, Guelph 9
3rd do. Robert Armstrong, Markham 5
Best yearling filly, James McDonogh, Colborne 8
2nd do, W. A. Forfar, Scarboro 6
3rd do, Silas Inch, Whitby 4
Best brood mare, and foal, or evidence that a foal has been raised, Simon Shunk, Vaughan 21
2nd do, Henry Mason, Scarboro 14
3rd do, Neal Taylor, Bowmanville 7
Best span matched farm team (geldings or mares, (in harness), Chas. Lamb, Walpole .. 20
2nd do, Simon Shunk, Vaughan 15
3rd do, Hugh Clarke, Scarboro 10

CLASS 4—HEAVY DRAUGHT HORSES—89 ENTRIES.

JUDGES—John Hunter, Goderich; David Lawrence, Brampton; Robert Currie, Niagara.

Best heavy draught stallion, 4 years old and upwards, John Kemp, Weston $36
2nd do, Charles J. Buck and, Guelph 26
3rd do, Robers Ferris, Richmond Hill 16
Best 3 years old stallion, Charles Mason, Tuckersmith 21
2nd do, James Laurie, Scarboro' 14
3rd do, do do 7
Best 2 years old stallion, Robert Ferris, Richmond Hill. imported 1870 45
2nd do, Simon Beattie, Compton 10
3rd do, James Belth, Clarke 5
Best yearling colt, Wm. Long, Todmorden, imported 1870 30
2nd do, John Cox, Markham 7
3rd do, Robert Cheyne, Brampton 4
Best draught stallion, any age, Robert Ferris, Richmond Hill ..... Diploma.
Best 3 years old filly, Charles Pilkey, Pickering 18
2nd do, Joseph Moffatt, Reach 11
3rd do, John Grey, Downie 6
Best 2 years old filly, J. J. Davidson, Pickering 16
2nd do, Robert Belth, Darlington 9
3rd do, Neal Taylor, Bowmanville 5
Best yearling filly, Wm. Jeffery, Whitby 3
2nd do, James Boge, Ravenshoe 6
Best brood mare, and foal, or evidence that a foal has been raised, J. J. Davidson, Pickering 21
2nd do, Duncan McConnachie, Clarke 14
3rd do, Walter Hutchinson, Toronto Gore 7
Best span of draught horses (geldings or mares), Simon Beattie, Markham 20
2nd do, George Miller, Markham 15
3rd do, Hendrie & Co., Toronto 10

CATTLE.

CLASS 5—DURHAMS.—188 ENTRIES.

JUDGES—James Archibald, Ivanhoe; Jas. Miller, Spencerville; Geo. Hyde, Shakespears; Matthew Jones, Bowmanville; John Dew, Yorkville; and James Vine, St. Catharines.

Best bull, 4 years old and upwards, John Miller, Pickering, "Oxford Mazurka" $36
2nd do, John Snell, Edmonton, "Louden Duke" 26
3rd do, J. & W. Thompson, Nepean, "Ontario John" 16
Best 3 years old bull, John Bellwood, Newcastle, "Oxford Chief" 36
2nd do, John Porter, Vaughan, "Sir Colin Campbell" 26
3rd do, Richard Brown, Clarke, "Darling Duke" 16
Best 2 years old bull, John Miller, Pickering, "Fawsley's Chief" 36
2nd do, Birrell & Johnstone, Pickering, "Bell Duke of Markham" 26
3rd do, F. W. Stone, Guelph, "Grand Duke of Cambridge" 16
Best one year old bull, John Miller, Pickering, "Kosciusco," imported 1870 30
2nd do, Richard Common, North Dumfries, "President Grant" 15
3rd do, John Miller, Pickering, "Orion" 10
Best bull calf (under one year), F. W. Stone, Guelph, "6th Grand Duke of Morven" 15
2nd do, J. & R. Hunter, Pilkington, "Sir Henry 2nd" 10
3rd do John Snell, Edmonton, "Joe Johnson" 5
Best bull of any age, John Miller, Pickering, "Fawsley's Chief" ..... Diploma
Best cow, John Miller, Pickering, "Cherry Bloom," imported 1870 48
2nd do, John Miller, Pickering, "Rose of Strathallan" 15
3rd do, John Miller, Pickering, "Gola" 12
Best 3 years old cow, John Snell, Edmonton, "Clara Barton" 20
2nd do, F. W. Stone, Guelph, "Miss Margaret 4th" 15
3rd do, J. & R. Hunter, Pilkington, "Dominion Belle" 10
Best two years old heifer, J. S. Thomson, Whitby, "Minnie Annandale," imported 1870 32
2nd do, John Snell, Edmonton, "Rosamond" .. 12
3rd do F. W. Stone, Guelph, "Cambridge 10th" 9
Best one year old heifer, J. S. Thomson, Whitby, "Red Rose," imported 1870 24
2nd do, J. S. Thomson, Whitby, "Loretto" .. 9
3rd do, John M. Bell, Pickering, "Empress" .. 6
Best heifer calf under one year, J. & R. Hunter, Pilkington, "Princess" 10
2nd do, John Snell, Edmonton, "Rosa Bonheur" 6
3rd do, John M. Bell, Pickering, "Lady Belle" 4
Best herd of Durham Cattle, consisting of one bull and five females of any ages, John Miller, Brongham 30

NOTE BY JUDGES.—We, the undersigned Judges on Durham cattle, cannot refrain from expressing the gratification we experienced at the high standard of excellence and general good qualities of the animals exhibited we being of opinion that they were superior, taken as a whole, to what we have seen at any former Exhibition.

CLASS 6—DEVONS—71 ENTRIES.

Judges—Edward Jones, Stamford; Thos. Donald, Mandemin; and Jacob Young, York.

Best bull, 4 years old and upwards, Geo. Rudd, Puslinch, "Wilmot" $30
2nd do, John Moore, Etobicoke, "Duke of Dorset" 20
3rd do., Peter Rowe, Collingwood, "Havelock" 10
Best 3 years old bull, Richard Foley, Darlington, "Heartland" 30
2nd do., W. and L. Courtice, Darlington, "General Grant" 20
3rd do., Nathan Choate, Hope, "Prince Arthur" 10
Best two years old bull, E. C. McCollum, Campbell's Cross, "Captain Jinks" 24
2nd do., R. D. Foley, Darlington, "Theodore" 16
Best bull calf, (under one year) Richard Foley, Darlington, "Sir Gilbert" 15
2nd do., Nathan Choate, Hope, "Splendor" .. 10
3rd do., do. do. "Bruce" 6
Best bull of any age, Richard Foley, Darlington, "Heartland" ..... Diploma
Best cow, Geo. G. Mann, Bowmanville, "Lady Bird" 20
2nd do., Geo. Rudd, Puslinch, "Lady Ann" .. 15
3rd do., W. and L. Courtice, Darlington, "Queen of Cleverdon" 10
Best 3 years old cow, Geo. G. Mann, Bowmanville, "Tulip" 20
2nd do., H. H. Spencer, Whitby, "Princess" 15
3rd do., Thos. Guy, Oshawa, "Helena" 16
Best 2 years old heifer, Geo. Rudd, Puslinch, "Crimrose" 10
2nd do., H. H. Spencer, Whitby, "Rose" 12
3rd do., Nathan Choate, Hope, "Maud" 8
Best one year old heifer, Geo. G. Mann, Bowmanville, "Princess Royal" 12
2nd do., Richard Foley, Darlington, "Fairy Belle" 9
3rd do., Geo. Rudd, Puslinch, "Lady Pink" ... 6
Best heifer calf (under one year), Richard Foley, Darlington, "Bell" 10
2nd do., W. and L. Courtice, Darlington, "Ida May 2nd" 6
3rd do., Geo. Rudd, Puslinch, "Dairy Maid" .. 4
Best herd of Devons, consisting of one bull and five females of any age or ages, N. Choate, Hope 20

CLASS 7—HEREFORDS—27 ENTRIES.

JUDGES—Sandford Howard, Lansing Mich.; Joseph Garner, Pelham; and James Laidlaw, Guelph.

Best 3 years old bull, F. W. Stone, Guelph, "Sir Charles" $30
Best 2 years old bull, F. W. Stone, Guelph, "Commander-in-Chief" 24
Best bull calf (under one year), George Hood, Guph, "Robin Hood 2nd" 15
2nd do. F. W. Stone, Guelph, "The Guelph Baronet" 10
3rd do. do. do. "The Wellington Chief," 5
Best Hereford bull, any age, F. W. Stone, Guelph, "Sir Charles." ..... Diploma.
Best Cow, F. W. Stone, Guelph, "Vesta 2nd," Imported; previously exhibited 40
2nd do. do. do. "Graceful 2nd" .. 15
3rd do. do. do. "Bonny Lass" 10
Best 3 years old cow, F. W. Stone, Guelph, "Vesta 4th" 20
Best 2 years old heifer, F. W. Stone, Guelph, "Graceful 4th" 16
Best one year old heifer, F. W. Stone, "Baroness 7th" 12
Best heifer calf, (under one year), F. W. Stone, Guelph, "Graceful 5th" 10

Best herd of Hereford cattle, consisting of one bull and five females, of any age, or ages, F. W. Stone, Guelph 20

NOTE BY JUDGES—The Judges consider the entire class of Herefords of superior excellence, and worthy of special commendation. They would also remark that the bull "Sir Charles" is an animal of great merit, combining large size with fine symmetry and first-rate quality. The animals brought to our notice were, in many instances, so nearly equal in merit, that it was by no means easy to discriminate between them.

CLASS 8—AYRSHIRES—127 ENTRIES.

JUDGES—Wm. Young, Carlow; John Adams, Edwardsburgh; W. Hay, Maryboro', and Donald Fraser, Odessa.

Best bull, 4 years old and upwards, Jas. Laurie, Scarboro', "Avondale," $30
Best 3 years old bull, Thomas Guy, Oshawa, "Lion," 30
2nd do. J. P. Wheeler, Scarboro', "Prince Albert," 20
3rd do, W. H. Wallbridge, Belleville, "Dominion," 10
Best 2 years old bull, Thos. Thompson, Williamsburg, "Crown Prince," imported 1870 72
2nd do. J. P. Wheeler, Scarboro', "Sir George" 16
3rd do. Thos. Patterson, Scarboro', "Saint Andrew," 8
Best one year old bull, Thomas Thompson, Williamsburg, "Tam o'Shanter," imported 1870 63
2nd do. do. do. "Prince of Wales." 14
3rd do. Thos. Guy, Oshawa 7
Best calf (under one year), James Laurie, Scarboro'. "Malvern," 15
2nd do W. H. Wallbridge, Belleville, "Manitoba," 10
3rd do. Thos. Guy, Oshawa, "Byron," 5
Best Bull of any age, Jas. Laurie, Scarboro'.. Diploma
Best cow, Thomas Thompson, Williamsburg, imported 1870 40
2nd do. J. P. Wheeler, Scarboro', "Dairy Maid," 15
3rd do. do. do. "Lily," 10
Best 3 years old cow, J. P. Wheeler, Scarboro', "Blossom," 20
2nd do. Jas. Laurie, Scarboro', "Jet Head," .. 15
3rd do. Thomas Thompson, Williamsburg, "Spotted Beauty," 10
Best 2 years old heifer, Thos Thompson, Williamsburg, "Queen," imported 1870 32
2nd do, do, do, "Lily," imported 12
3rd do, J. P. Wheeler, Scarboro, "Nelly Grey" 8
Best one year old heifer, Jas Laurie, Scarboro, "Nonsuch" 12
2nd do, J. P. Wheeler, Scarboro, "Jessie" ... 9
3rd do, Thos. Thompson Williamsburgh, "Jenny" 6
Best heifer calf (under one year), J. P. Wheeler, Scarboro, "Cherry" 10
2nd do, Thos. Guy, Oshawa, "Flora" 6
3rd do, Jas. Laurie, Scarboro, "Beauty 2nd" .. 4
Best herd of Ayrshire cattle, consisting of one bull and five females, of any age or ages, J. P. Wheeler, Scarboro 2

CLASS 9—GALLOWAYS—52 ENTRIES

JUDGES—W. H. Peterson, Hawkesville; W. R. Havens, Homer; and John Wilson, Rosedale.

Best bull, 4 years old and upwards, Arthur McNeil, Vaughan, "Hard Fortune" $30
2nd do, Wm. Hood, Guelph, "Our John" ... 20
3rd do, Thos. McCrae, Guelph, "Pride of the Speed" 10
Best 2 years old bull, Thos. McCrae, Guelph, "Black Prince" 24
Best 1 year old bull, Arthur McNeil, vaughan, "Duncan" 24
2nd do. Wm. Hood, Guelph 14
Best bull calf (under one year), Wm Hood, Guelph 15
2nd do, Thos McCrae, Guelph, "King Tom" .. 10
3rd do, Wm. Hood, Guelph, "Shoo Fly" 5
Best bull of any age, Arthur McNeil, Vaughan, "Hard Fortune" ..... Diploma
Best cow. Wm. Hood, Guelph, "Idaho" 20
2nd do, do, do, "Lady Isabella" 15
3rd do, Arthur McNeil, Vaughan, "Lizzie" 10
Best 3 years old cow, Wm. Hood, Guelph, "Maggie Lauder" 20
2nd do, Arthur McNeil, Vaughan, "Susan" .. 15
3rd do, Thos. McCrae, Guelph, "Grace Darling" 10
Best 2 years old heifer, Thos. McCrae, Guelph, "Margaret Hay" 16
2nd do, Wm. Hood, Guelph, "Hyena" 12
3rd do, do, do, "Mary" 8
Best one year old heifer, Arthur McNeil, Vaughan, "Rosa" 12
2nd do, Wm. Hood, Guelph, "Lyma" 9
Best heifer (under one year), Thos. McCrae, Guelph—"Lady Herring." 10
2nd do., Wm. Hood, Guelph—"Topsy Wopsy." 6
3rd do., Thos. McCrae, Guelph—"Bessy Lee." 4
Best herd of Galloways, consisting of one bull and five females of any age or ages, Wm. Hood, Guelph 20

NOTE BY JUDGES—We, the undersigned Judges, beg to remark that the animals exhibited were well bred.

CLASS 10—GRADE CATTLE—41 ENTRIES.

JUDGES—John Forth, Addison; Henry Wade, Port Hope; and Richard Manning, Exeter.

Best grade cow, John Miller, Pickering $24
2nd do, J. and W. Thomson, Nepean 16
3rd do., Hemlock Young, Guelph 12
Best 3 years old cow, Joseph S. Thompson, Whitby 20
2nd do., Joseph S. Thompson, Whitby 14
3rd do., do. do. do. 10
Best 2 years old heifer, John Miller, Pickering 10
2nd do., Joseph S. Thompson, Whitby 12
3rd do., Hemlock Young, Guelph 8
Best 1 year old heifer, John Miller, Pickering. 12
2nd do., George Miller, Markham 8
3rd do , J. S. Thompson, Whitby 6
Best heifer calf (under one year), John Miller, Pickering 10
2nd do., George Miller, Markham 6
3rd do., Samuel Barber, Guelph 4

NOTE —The Judges were very much pleased with the show of heifer calves. They were all very superior, better than the average.

CLASS 11—FAT AND WORKING CATTLE, ANY BREED—33 ENTRIES.

JUDGES—John Carter, Uunlonville; D. D. McPhee, Alexandria; Philip Armstrong, Yorkville, and H. J. Brown, Niagara.

Best fat ox or steer, 3 years old and over, Jas. Vine, Granthan ..... $ 30
2nd do., J. S. Armstrong, Eramosa 20
Best fat steer, under 3 years old, George Hood, Guelph 30
Best fat cow or heifer, 3 years old and over, Alex. Watt, Nichol 30
2nd do., do., do 20
Best fat cow or heifer, under 3 years, Hemlock Young, Guelph 30
Best yoke of working oxen, Archibald Speers, Norval 10
Best yoke, three year old working steers, Archibald Speers, Norval 10
2nd do. Archibald Speers, Norral 6

SHEEP, LONG-WOOLLED.

CLASS 12—COTSWOLDS—155 ENTRIES

JUDGES — Richard Renneleon, Galt; James Craig, Derwent; F. A. Neills, York; David Messenger, Cooksville; and Matthew Walton, Peterborough.

Best ram, two shears and over, John Snell, Edmonton $30
2nd do, John Miller, Pickering 15
3rd do, Jas. Russell, Markham 10
Best shearling ram, F. W. stone, Guelph, Imported 1870 00
2nd do, F. W. Stone, Guelph 15
3rd do, John Snell, Edmonton 10
Best ram lamb, John Miller, Brougham 15
2nd do, Jas. Russell, Markham 12
3rd do do do 9
4th do do do 6
Best 2 ewes, 2 shears and over, Geo. Mitchell, Darlington 15
2nd do, Geo. Mitchell, Darlington 13
3rd do, F. W. Stone, Guelph 8
Best 2 shearling ewes, John Miller, Pickering, imported 1870 36
2nd do, Jno. Snell, Edmonton 13
3rd do, John Miller, Pickering 8
Best 2 ewe lambs, F. W. Stone, Guelph 15
2nd do, John Snell, Edmonton 12
3rd do, F. W. Stone, Guelph 9
4th do, Jas. Russell, Markham 6

EXTRAS—W. H. Wallbridge, Belleville, pair Lincolnshire ewes, imported 1870, 1st prize, $36.

NOTE BY THE JUDGES.—In the class of Cotswolds the Judges report a large number of animals of surpassing excellence.

CLASS 13.—THE PRINCE OF WALES' PRIZE—6 ENTRIES.

JUDGES.—The Judges of Cotswold and Leicesters.

Best Flock of Leicester sheep, consisting of 1 ram, one shear and over; 1 ram lamb; 2 ewes, two shears and over; 2 shearling ewes; 2 ewe lambs. Prize presented by His Royal Highness the Prince of Wales; John Snell, Edmonton $60

NOTE BY THE JUDGES.—The Judges to award His Royal Highness the Prince of Wales' prize for the best eleven Leicestar sheep of various ages, have attended to that duty, and beg to report that they have awarded the prize to Mr. John Snell, of Edmonton, Post.

CLASS 14.—LEICESTERS—167 ENTRIES.

JUDGES —C. A. Jordison, Stirling; Robert Shearer, Niagara; Wm. Clark, Rondeau; Robert Kirby, Guelph; and J. H. Reid, New Brunswick.

Best ram, 2 shears and over, Richard Lean, Hamilton township $30
2nd do., John Snell, Edmonton 15
3rd do., Hugh Love, senr., Hay 10
Best shearling ram, John Snell, Edmonton, Imported 1870 30
2nd do , Adam Oliver, Downie 15
3rd do., Thos. Clarke, North Dumfries 10
Best ram lamb, Thos. Teasdale, Chinguacousy, 15
2nd do., John Snell, Edmonton 12
3rd do , Thomas Russell, Markham 9
4th do. do do 6
Best 2 ewes, two shears and over, John Snell, Edmonton, imported, and not previously exhibited 26
2nd do., Chris. Walker, London 13
3rd do., Adam Oliver, Downie 8
Best 2 shearling ewes, W. H. Wallbridge, Belleville, imported 1870 26
2nd do., John Snell, Edmonton 13
3rd do , Chris. Walker, London 8
Best 2 ewe lambs, Chris. Walker, London 15
2nd do., John Snell. Edmonton 12
3rd do., Chris. Walker, London 9
4th do., Adam Oliver, Downie 6

NOTE BY THE JUDGES.—The Judges on Class 14 have attended to that duty, and beg to submit the following report:—The sheep presented to us, to award prizes for, were short of the number entered, but still the show of Leicester sheep was a respectable show, and we have, to the best of our judgment, awarded according to the rules laid down in the Premium List; and we further beg to make special mention of the superior form and quality of the first prize Leicester shearling ewes just imported

SHEEP—MEDIUM-WOOLLED.

CLASS 15—SOUTHDOWNS—61 ENTRIES.

JUDGES.—J. W. Overholt, Marshville; Geo. Jones, West Flamboro'; Wm. Patterson, Shakespeare; Thos Russell, Charing Cross; and J. F. Wheler, Woburn.

Best ram, two shears and over, F. W. Stone, Guelph $15
2nd do., Donald Fraser, Earnestown 10
3rd do., Wm. Forfar, Agincourt 6
Best shearling ram, H. Renneleon, Galt 15
2nd do., H. H. Spencer, Whitby 10
3rd do., Wm. Forfar, Agincourt 6
Best ram lamb, H. H. Spencer, Whitby 8
2nd do., R. D. Foley, Darlington 6
3rd do., Platt Hinman, Haldimand 4
Best 2 ewes, 2 shears and over, John Smith, Burford 15
2nd do, Alex. Young, Barton 10
3rd do, J. W. Johnson, Grantham 6
Best 2 shearling ewes, John Smith, Burford .. 15
2nd do, W. M. Smith, Burford 10
3rd do, R. D. Foley, Darlington 6
Best 2 ewe lambs, J. W. Johnson, Grantham .. 8
2nd do, W. M. Smith, Burford 6
3rd do, R. D. Foley, Darlington 4

CLASS 16—SHROPSHIRE, HAMPSHIRE, AND OXFORDSHIRE DOWNS—16 ENTRIES.

JUDGES—James H. Bessey, St. Catharines; James Maxwell, Paris; Patrick Carroll, Goderich.

Best ram, 2 shears and over, H. H. Spencer, Whitby $15
Best shearling lamb, H. H spencer, Whitby .. 15
Best ram lamb, H. H. Spencer, Whitby 8
2nd do, John Jackson, Chinguacousy 6
Best 2 ewes, 2 shears and over, John Jackson, Chinguacousy 15
2nd do, H. H. Spencer, Whitby 10
Best 2 shearling ewes, H. H. spencer, Walkby. 15
Best 2 ewe lambs, H. H. Spencer, Whitby 8
2nd do, H. H. Spencer, Whitby 6

SHEEP—FINE-WOOLLED.

CLASS 17—SPANISH, FRENCH AND SAXON MERINO—61 ENTRIES

JUDGES—Irvine Diamond, Napanee; J. B. Aylesworth, Newburgh; and Lewis Laplerre, Paris.

Best ram, 2 shears and over, R. D. Foley, Darlington $15
2nd do. John Smith, Burford 10
3rd do, R. D. Foley, Darlington 6
Best shearling ram, John Smith, Burford 15
2nd do, W. M Smith, Burford 10
3rd do, R. D. Foley, Darlington 5
Best ram lamb, R. D. Foley, Darlington 8
2nd do, R. D. Foley, Darlington 6
3rd do, Platt Hinman, Haldimand 4
Best 2 ewes, 2 shears and over, John Smith, Burford 15
2nd do, Alex. Young, Barton 10
3rd do, J. W. Johnson, Grantham 6
Best 2 shearling ewes, John Smith, Burford .. 15
2nd do, W. M. Smith, Burford 10
3rd do, R. D. Foley, Darlington 5
Best 2 ewe lambs, J. W. Johnson, Grantham .. 8
2nd do, W. M. Smith, Burford 6
3rd do, R. D. Foley, Darlington 4

CLASS 18—FAT SHEEP.—26 ENTRIES.

Judges—Same as for Fat cattle.

Best 2 fat wethers, 2 shears and over, R. Renneleon, Galt $12
2nd do, R. Renneleon, Galt 8

Best 2 fat ewes, 2 shears and over, James Russell, Markham..... 12
2nd do George Weldrick, Vaughan 8
Best 2 fat ewes, under 2 shears, James Russell, Markham 12
2nd do, John Snell, Edmonton 8

PIGS—LARGE BREEDS.

CLASS 19—YORKSHIRE AND OTHER LARGE BREEDS—23 ENTRIES.

Judges—Malcolm McGillivray, Laggan; George Heck, Prescott; and Donald McFarlish, Shakespeare.

Best boar, one year and over, James Brodie & Son, Belleville..... $15
2nd do, James Brodie & Son, Belleville..... 12
3rd do, J. F. Wheeler, Scarboro'..... 9
Best boar, under one year, James Main, Trafalgar..... 12
2nd do, Samuel H. Reeves, Toronto Township, 9
3rd do, Samuel H. Reeves, Toronto Township, 6
Best breeding sow, one year and over, Angus Shaw, Kingston..... 15
2nd do, James Brodie & Son, Belleville..... 12
3rd do, W. H. Wallbridge, do 9
Best sow, under one year old, James Brodie and Son..... 12
2nd do do 9
3rd do Samuel H. Reeves, Toronto Township 6

PIGS—SMALL BREEDS.

JUDGES—John Randall, Newmarket; George Bennett, Charing Cross; and N. H. Pauling, Port Dalhousie.

CLASS 20—SUFFOLKS—50 ENTRIES.

Best boar, one year and over, George Roach, Hamilton $15
2nd do do 12
3rd do Joseph Featherston, Toronto Township 9
Best boar, under one year, George Roach, Hamilton 12
2nd do James Main, Trafalgar.. 9
3rd do Joseph Featherston, Toronto Township..... 6
Best breeding sow, one year and over, George Roach, Hamilton 15
2nd do do 12
3rd do do 9
Best sow, under one year old, George Roach, Hamilton 12
2nd do do 9
3rd do James Main, Trafalgar.. 6

CLASS 21—IMPROVED BERKSHIRES—74 ENTRIES.

JUDGES—Hugh Campbell, Plainfield; John Foott, Port Hope; and David Mollwaine, Nile.

Best boar, one year and over, George Roach, Hamilton, imported; not previously exhibited $15
2nd do John Crumb, Hampton.. 12
3rd do Wm. Major, Whitevale.. 9
Best boar, under one year, John Snell, Edmonton, imported 1870..... 36
2nd do John Corlie, Dereham.. 9
3rd do Wm. Padgett, sr., Markham..... 6
Best breeding sow, one year and over, John Crumb, Hampton..... 15
2nd do., M. Porter, Bowmanville..... 12
3rd do., Wm. Forfar, Agincourt..... 9
Best sow, under one year, John Miller, Pickering, imported 1870..... 24
2nd do., do..... 9
3rd do., Wm Padgett, senior, Markham..... 6

CLASS 22—ESSEX PIGS—26 ENTRIES.

JUDGES—John Best, Niagara; Edward McGannon, Prescott; Thos. Card, Marden P. O.

Best boar, one year and over, Joseph Featherstone, Toronto township..... $15
2nd do, George Roach, Hamilton..... 12
3rd do, Thomas McCrae, Guelph..... 9
Best boar, under one year, George Roach, Hamilton..... 12
2nd do., Thomas McCrae, Guelph..... 9
3rd do, George Roach, Hamilton..... 6
Best breeding sow, one year and over, George Roach, Hamilton..... 12
2nd do., Thomas McCrae, Guelph..... 12
3rd do, do..... 9
Best sow, under one year old, George Roach, Hamilton..... 12
2nd do., do..... 9
3rd do, do..... 6

CLASS 23—OTHER SMALL BREED PIGS, EXCLUSIVE OF SUFFOLK, BERKSHIRE AND ESSEX—24 ENTRIES.

JUDGES—J. C. Langstaff, Ailsa Craig; Aaron Choate, Port Hope; and James McDonagh, Carlow.

Best boar, one year and over, John Cumming, Hallett..... $15
2nd do., Joseph Featherstone, Toronto Township..... 12
3rd do., Joseph Featherstone, Toronto Township..... 9

Best boar, under one year, James Main, Trafalgar..... 12
2nd do, David Ronndtree, York Township.... 9
3rd do, John Cumming, Hullett..... 6
Best breeding sow, one year and over, Joseph Featherstone, Toronto Township..... 15
2nd do., Joseph Featherstone, Toronto Township..... 12
Best sow, under one year old, James Main, Trafalgar..... 12
2nd do., James Main, Trafalgar..... 9
3rd do., John Cumming, Hullett..... 6

CLASS 24—POULTRY, &C.—257 ENTRIES.

JUDGES—J. J. Miller, Virgil; J. W. Sills, Prescott; John Plummer, London; Charles Punchard, Toronto; and Dr. Coleman, Belleville.

Best pair white dorkings, John Bogue, Westminster..... $4
2nd do., John Bogue, Westminster..... 2
Best pair of coloured dorkings, W. H. Vanlngen, Woodstock..... 4
2nd do., A. Mc L. Howard, Toronto..... 2
Pair of white crested black Polands, John Smith, Burford..... 2
Best pair of golden Polands, John Bogue, Westminster..... 4
2nd do., James Magrath, Toronto..... 2
Best pair of silver Polands, John Bogue, Westminster..... 4
2nd do., John Bogue, Westminster..... 2
Best pair of game fowls (black-breasted and other reds), James Main, Trafalgar..... 4
2nd do., E. Maddaford, Toronto..... 2
Best pair of fowls, any other variety, E. Maddaford, Toronto..... 4
Best pair of white or other colour Cochin Chinas, A. McL. Howard, Toronto..... 4
2nd do., John Weatherstone, Bronte..... 2
Best pair of Brahma Pootras, light, H. M. Thomas, Brooklin..... 4
2nd do., John Bogue, Westminster..... 2
Best pair of Brahma Pootras, dark, H. M. Thomas, Brooklin..... 4
2nd do., John Bogue, Westminster..... 2
Best pair of Spanish fowls, Daniel Allan, Galt 4
2nd do., John Bogue, Westminster..... 2
3rd do., Henry Dawson, Brampton..... 8
Best pair of silver pencilled Hamburgs, John Bogue, Westminster..... 4
2nd do., John Bogue, Westminster..... 2
Best pair of golden spangled Hamburgs, A. McL. Howard, Toronto..... 4
Best pair of silver spangled Hamburgs, John Bogue, Westminster..... 4
2nd do, Jas Main, Trafalgar..... 2
Best pair of Houdan fowls, W. H. Van Ingen, Woodstock..... 4
2nd do, W. H. Van Ingen, Woodstock..... 2
Best pair of Sebright bantams, James Main, Trafalgar..... 2
2nd do., E. Maddaford, Toronto..... 1
Best pair of any other variety of bantams, Henry Killen, Guelph..... 2
2nd do., Henry Killen, Guelph..... 1
Best Turkey Cock (any colour), single bird, J. W. Johnson, Grantham..... 3
Best pair of turkeys (any colour), J. W. Johnson, Grantham..... 5
2nd do., John Bogue, Westminster..... 3
Best pair of geese (white), John Cullis, Hamilton township..... 4
2nd do., John Cullis, Hamilton township..... 2
Best pair of geese (coloured), Thomas S. Henry, Oshawa..... 4
2nd do, Richard Lean, Hamilton Township.. 2
Best pair of Aylesbury ducks, John Bogue, Westminster..... 4
2nd do, John Forsyth, York Township..... 2
Best pair of Rouen ducks, M. Porter, Bowmanville..... 4
2nd do, J. W. Johnson, Grantham..... 2
Best pair of any other kind of ducks, John Bogue, Westminster..... 4
2nd do, John Dickson, Weston..... 2
Best pair of Guinea fowls, W. M. Smith, Burford..... 4
2nd do, do..... 2
Best carrier, pouter, and tumbler pigeons, Jas. Magrath, Toronto..... 3
2nd do, John Bogue, Westminster..... 1

CHICKENS AND DUCKS OF 1870.

Best pair of dorkings of either variety, R. Currie, Niagara..... $4
2nd do., John Bogne, Westminster..... 2
Best pair of game fowls of any variety, E. Maddaford, Toronto..... 4
2nd do., E. Maddaford, Toronto..... 2
Best pair of Spanish fowls, John Bogue, Westminster..... 4
2nd do., Daniel Allan, Galt..... 2
Best pair of Cochin Chinas, of any variety, Jno. Bogue, Westminster..... 4
2nd do., do., do. 2
Best pair of Brahma Pootras, John Forsyth, York Township 4
2nd do., A. M. Howard, Jun., Toronto..... 2
Best pair of Hamburgs, any variety, John Bogue, Westminster..... 4
2nd do., do., do. 2

Best pair of Polands, any variety, Jno. Bogue, Westminster 4
2nd do., J. W. Johnson, Grantham..... 2
Best pair of Aylesbury ducklings, John Forsyth, York Township..... 4
2nd do., Richard Lean, Hamilton Township .. 2
Best pair ducklings, any other kind, Thos. and S. Henry, Oshawa..... 4
2nd do, W. H. Van Ingen, Woodstock..... 2
Best pair of fowls of 1870, of any other kind, W. H. Van Ingen, Woodstock 4
2nd do., Robert Paterson, Peterboro'..... 2

IMPLEMENTS.

CLASS 25—AGRICULTURAL IMPLEMENTS, WORKED BY HORSE, STEAM, OR OTHER POWER—222 ENTRIES.

JUDGES:—Robert Madden, Newburgh; Wm Byers, Gananoque; John Stevenson, Unionville; and Wm. Helm, Peterboro'.

Best portable steam engine for agricultural purposes, not less than six horse power, to be put in operation on the ground, William Hamilton & Son, Toronto $30
Best two-furrow plough, John Gray & Co., Glasgow, Scotland 25
Best iron plough, Geo. Wilkinson, Whitchurch, diploma and..... 12
2nd do., John Morley, Thorold..... 8
3rd do. Joseph Lawrie, Sarnia..... 4
Best wooden plough, John Morley, Thorold, diploma and..... 12
2nd do., G. Williamson, Seaforth..... 8
3rd do., James Whyte, Peterboro'..... 4
Best sub-soil plough, John Morley, Thorold, diploma and..... 12
2nd do., Peter Malaby, Weston..... 8
3rd do., George Gray, London..... 4
Best double share trench plough, John Watson Ayr..... 10
2nd do., Joseph Lawrie, Sarnia..... 7
3rd do., W. R. Grey, Dundas..... 4
Best double mould plough, Chas. Thain, Guelph 10
2nd do., John Morley, Thorold..... 7
3rd do., John Walmsley, London..... 4
Best gang plough, Massey Manufacturing Company, Newcastle..... 12
2nd do., W. Atkinson Bros., Etobicoke..... 8
Best field or two-horse cultivator, iron, John Doldge, Whitby 12
2nd do., Samuel Sleep, Perrytown..... 8
3rd do., Isaac Westcott, Bowmanville..... 4
Best two-horse cultivator, wood, T. & George Morgan, Markham..... 12
2nd do., Chas. Thain, Guelph..... 8
3rd do., Patterson Bros., Patterson..... 4
Best horse hoe, or single horse cultivator, iron, Isaac Westcott Bowmanville..... 4
2nd do, Massey Manufacturing Company, Newcastle..... 3
Best horse hoe, or single-horse cultivator, wood, Patterson Bros., Patterson..... 4
2nd do, John Watson, Ayr..... 3
3rd do, Charles Thain, Guelph..... 2
Best clod crusher, A. Harris and Son, Beamsville..... 8
Best land presser, W. Atkinson Bros., Etobicoke..... 8
Best pair of iron harrows, JohnDoldge, Whitby 6
2nd do, John Macintosh, Dumbarton..... 4
3rd do, Henry Folliot, King..... 2
Best pair of wood harrows, Lockhart and Millar, Peterboro'..... 6
2nd do, George Carr, Sidney..... 4
Best wooden roller, A. Kennedy, E Zorra..... 10
2nd do, J. Bolter, London..... 5
Best grain drill, L. D. Sawyer and Co., Hamilton..... Diploma and 12
2nd do, Maxwell and Whitelaw, Paris..... 8
3rd do, John Watson, Ayr..... 4
Best seed drill for sowing two or more drills of turnips, mangolds, or other seeds, Chas. Thain, Guelph..... 8
2nd do, John Watson, Ayr..... 5
Best mowing machine, Brown and Patterson Whitby..... Diploma and 20
2nd do, Patterson Bros., Patterson..... 12
3rd do, Massey Manufacturing Company, Newcastle..... 8
Best reaping machine, Patterson Bros., Patterson..... Diploma and 20
2nd do, Brown and Patterson, Whitby..... 12
3rd do, Massey Manufacturing Company, Newcastle..... 8
Best combined mower and reaper, Massey Manufacturing Co'y., Newcastle Diploma and 20
2nd do, J. Lawrence and Sons, Palermo..... 12
3rd do, L. D. Sawyer and Co., Hamilton..... 8
Best horse rake, Jas. Soutar, Chatham..... 4
2nd do, John Watson, Ayr..... 3
3rd do, L. D. Sawyer and Co., Hamilton..... 2
Best horse pitchfork and tackle, Shorey and Cramer, Napanee..... 4
2nd do., do., do. 3
3rd do., Peter Grant, Clinton..... 2
Best horse-power thresher and separator, John Watson, Ayr, diploma and..... 20
2nd do., Macpherson, Glasscoe and Co., Fingall 12
3rd do., Haggart Bros., Brampton..... 8
4th extra prize for improved gearing, J. J. Lapjin, Davenport.....

Best potato digger, John S. Rote, Erin..... 10
2nd do., John Walmsley, London..... 5
Best stump extractor, John Douglass, Vienna 8
2nd do., John Scott, Caledonia..... 4
Best straw cutter, John Watson, Ayr..... 5
2nd do., Mazwell and Whitelaw, Paris..... 4
3rd do., do., do..... 3
Best portable grist mill, John Huband, Toronto..... 12
Best grain cracker, Massey Manufacturing Co., Newcastle..... 6
2nd do., C. H. Waterous and Co., Brantford.. 4
Best corn and cob crusher, C. H. Waterous and Co., Brantford..... 4
Best clover cleaning machine, L.D. Sawyer and Co., Hamilton..... 12
Best cider mill and press, H. Sells, Vienna.... 6
Best two-horse team waggon, Henry Sloan, Innisfil..... 12
2nd do., James Kay, Galt..... 8
3rd do., Joseph Foster, Malton..... 4
Best two-horse spring market waggon, J. and E Sprague, Amelisburg..... 10
2nd do., Bott, Shatton, and Walton, Toronto 7
Best one-horse light market waggon, Peter Mallaby, Weston..... 9
Best horse cart, Thos. Gibson, Markham..... 6
Best farm sleigh, John Rice, Whitby..... 8
Best brick making machine, Bulmer and Shepard, Montreal..... Diploma and 10
2nd do, Copp Bros., Hamilton..... 6
Best draining plough, or ditching machine, for digging drains, Eyre and Brother, Richmond Hill..... 12

EXTRAS.—Extra prizes were awarded to John Dinins, Newmarket, for frame barn, new system, $20; Geo. Wilkinson, Whitchurch, iron beam plough, $6 00; David Bell, Brampton, fence cap boring machine $4 00; William Fraser, Esquesing, hay car, $4 00; W. H. Wallbridge, Belleville, horse-power machine (2 prizes), $6 00 and $4 00; Sweet, Barnes and Co., Syracuse, N. Y., assortment of mowing and reaping machine knives and sections, $3 00; Maxwell and Whitelaw, Paris, pea thresher and straw cutter combined, $5 00; J. Sharmon, Stratford, farmers' thresher and horse power, $6 00; Geo. Clark, St. Catharines, wheat separator for mill purposes, $5 00; do, do, improved belt fittings, $3 00; Jno. Westlick, Hope, horse cultivator and grain drill combined, $4 00; J. Parker, Mount Brydges, Parker's self-unloading waggon box, highly commended; Edward Roblin, Sopanasbing, improved cutting bar for reapers and mowers, highly commended; Park and S. Rolf, Erin, section bar for reaping or mowing machines, highly commended; Roderick Lane, Stratford, combined plough and cultivator, commended; Hugh A Stringer, Chatham, self-raise attachment for reaping machine, commended; Misener and Boxer, W. Flamboro, combined horse hoe and reaping plough, iron, commended; Atkinson Bros., Etobicoke, cast metal steamer for steaming food, commended; John Nelson, Belleville, cylinder for threshing machine, commended; Maxwell and Whitelaw, Paris, horse-power for farmers' own use, commended; Improvement in Gearing, J. J. Lappin, of Davenport.

NOTE BY JUDGES.—We, the Judges in Class 25, respectfully recommend that this class be divided into two or more classes, the work gone over being too great for one set of Judges.

CLASS 26—AGRICULTURAL TOOLS AND IMPLEMENTS, CHIEFLY FOR HAND USE—165 ENTRIES.

JUDGES—John H. Grant, Grimsby; A. McKellar, Chatham; and Wm. McAlpine, Maudamin.

Best machine for making drain tiles, David Darvil, London..... diploma and $20
Best assortment of drain tiles, Wm. Gibbs, Wellington Square..... 4
Best half-dozen steel hoes, Tuttle, Date & Rodden, St. Catharines..... 3
2nd do., Whiting & Cowan, Oshawa..... 2
Best half-dozen manure forks, Tuttle, Date & Rodden, St. Catharines..... 4
2nd do., Whiting & Cowan, Oshawa..... 2
Best half-dozen spading forks, Tuttle, Date & Rodden, St. Catharines..... 3
2nd do., Whiting & Cowan, Oshawa..... 2
Best garden, walk, or lawn roller, Massey Manufacturing Company, Newcastle..... 4
Best half-dozen scythe snaiths, Thomas Bryan, London township..... 3
Best grain cradle, P. Dick, Orillia..... 2
2nd do., Thomas Bryan, London township.... 1
Best half-dozen grass scythes, Whiting & Cowan, Oshawa..... 3
2nd do., Tuttle, Date & Rodden, St. Catharines 2
Best half-dozen cradle scythes, Whiting and Cowan, Oshawa..... 3
2nd do do, Tuttle, Date and Rodden, St. Catharines..... 2
Best lawn-mowing machine, Alexander Shanks and Son, Arbroath, Scotland..... 8
2nd do do, do do 3
Best half-dozen hay rakes, Thomas Bryan, London township..... 3
2nd do do, James Coone, Manilla..... 2
3rd do do, Thomas Bryan, London township..... 1
Best half-dozen hay forks, Tuttle, Date and Rodden, St. Catharines..... 4
2nd do do, Whiting and Cowan, Oshawa.. 2

Best implement or machine for cutting, pulling, or otherwise harvesting peas, hand or horse power, L. Johnson, London..... 8
2nd do do, Wm. Forfar, Agincourt..... 4
Best straw or barley fork, wood, Thos. Bryan, London township..... 2
Best fanning mill, A. and W. Wilson, Richmond Hill..... Diploma and 8
2nd do do, J. H. Johnson, Newmarket.. 6
3rd do do, Patterson Bros., Patterson.. 4
Best straw cutter, Patterson Bros., Patterson 4
2nd do do, Maxwell and Whitelaw, Paris. 3
3rd do do, John Watson, Ayr..... 2
Best machine for cutting roots for stock, John Watson, Ayr..... 8
2nd do do, Mazwell and Whitelaw, Paris. 4
3rd do do, James Cruikshank, Weston.. 2
Best Churn, Coridon Leurs, Salford..... 3
2nd do do, Jas. Allan, Kerwood..... 2
Best bee-hive, J. H Thomas, Brooklin..... 3
2nd do do, A. C. Attwood, Vanneck.... 2
3rd do do, Philip Nicholls Lindsay.... 1
Best half-dozen axe-handles, Coridon Leurs, Salford 2
2nd do do, A. P. Thomson, Scarboro'... 1
Best six chopping axes, Tuttle, Date and Rodden, St. Catharines..... 3
Best set horse shoes, James Berry, Toronto.... 2
2nd do do, G. Williamson, Seaforth.... 1
Best farm gate, J. Parker, Mount Brydges.... 3
2nd do., D. S. Cornell, Arkona..... 2
3rd do., S. Washburn, South Dumfries..... Trans.
Best specimen farm fence, wood, A. Weir, Welleby..... 3
2nd do., R. H. Jarvis, Hibbert..... 2
3rd do, Levi Wismer, Rosoville..... Trans
Best specimen wire fencing, not less than two rods, erected on the ground, W. H. Rice, Toronto..... 3
2nd do., S. Washburn, South Dumfries..... 2
Best wooden pump, Chas. Powell, Newton Brook..... 4
2nd do., A. T. Moore, Markham..... 2
3rd do., D. C. Ferguson, Scarboro'..... 1

EXTRAS—A. C. Attwood, Vanneck, honeycomb emptying machine, com.; H. Loses, Cobourg, inside and outside door fastener, do.; John C. Lowe, Rothsay, nose patent poke for breechy cattle, do.; Whiting and Cowan, Oshawa, half a dozen weedcutters, $5 00, do.; Massey Manufacturing Company, Newcastle, sickle grinder, for sharpening mowing and reaping machine knives, do.; Kent. Williamson, West Oxford, bag holder and weigh stand, do; John Easterbrook, Aldershott, grass lining for pumps, do., $3 00; Henry Bolton, Elizabethtown, dog power for household work; D. C. Crosby, Watertown, a hoisting machine, $15; W. W. Kitchen, Grimsby, improvement on fence posts, $3 00.

AGRICULTURAL PRODUCTIONS.

CLASS 27—GRAINS, SMALL FIELD SEEDS, HOPS, &c. —325 ENTRIES.

JUDGES — David Thompson, M.P., Indians; Robert Clapp, Picton; Chauncey Bellamy, Toledo; Richd Nichols, McGillivray; John Mulholland, Cobourg; Richard Church, Cataract; and John M. McKay, Toronto.

The Canada Company's prize for the best 25 bushels of fall Wheat, the produce of the Province of Ontario, being the growth of 1870. Each sample must be of one distinct variety, pure and unmixed, of the best quality for seed, and not to be tested merely by weight. The prize to be awarded to the actual grower of the wheat, which is to be given up to and become the property of the Association, for distribution in the several agricultural districts for seed; James McNair, Richmond Hill..... $100
2nd do., by the Association, John Cullis, Hamilton Township 40
3rd do., do., James Freeman, west Flamboro.. 20
Best two bushels of white winter wheat, Joseph Redmond, Otonabee..... 10
2nd do., Geo. Taylor, Pickering..... 8
3rd do., Robert Shearer, Niagara..... 6
4th do, John Cullis, Hamilton Township..... 4
Best two bushels of red winter wheat, Mr. W. A Forfar, Scarboro..... 8
2nd do., Joseph Grant, Puslinch..... 6
3rd do., John Richardson, North Pelham 4
4th do, H. Kennedy, London Township..... 2

SPECIAL PRIZE

For the best four bushels of Spring Wheat, special prize given by Messrs. Robertson and Cook, of the *Telegraph* office, Toronto, the samele obtaining the prize to be their property, John Hanna, Manvers..... 50
Best two bushels of Fife spring wheat, J. Heacock, King..... 8
2nd do., George Carruthers, Haldimand 6
3rd do., John Hanna, Manvers..... 4
Best two bushels spring wheat of any other variety, Joseph Redmond, Otonabee..... 8
2nd do., Wm. Westington, Hamilton Township 6
3rd do., C. Westington, Cold Springs..... 4

Best two bushels barley (2 rowed), Thos. Gibson, Markham..... 6
2nd do., S. Heacock, King..... 4
3rd do., Geo. Carruthers, Haldimand..... 2
Best two bushels of barley (6 rowed), Walter Riddell, Hamilton Township..... 6
2nd do., P. Bartholomew, Markham..... 4
3rd do., Andrew Black, Hamilton Township.. 2
4th do, William Thompson, Whitby ..... Trans.
Best two bushels of winter rye, James Freeman, W. Flamboro 6
2nd do., J. B. Aylsworth, Newburgh..... 4
3rd do., D. Lynn, York Township..... 2
Best two bushels of oats (white), W. D. Stoddart, Bradford 6
2nd do., Donald McTavish, North Easthope .. 4
3rd do., Thomas Gibson, Markham..... 2
4th do., Wm. Thompson, Whitby ..... Trans.
Best two bushels of oats (black), John Richardson, N. Pelham 8
2nd do., Walter Riddell, Hamilton Township. 4
3rd do., W. M. Smith, Burford..... 2
4th do., P. Bartholomew, Markham ..... Trans.
Best two bushels of small field peas, A. P. Thompson, Scarboro 6
2nd do., Chas. Shaver, Etobicoke 4
3rd do., D. Lynn, York 2
4th do., Thos. Gibson, Markham..... Trans.
Best two bushels of marrowfat peas, John Cullis, Hamilton Township..... 6
2nd do., C. Westington, Cold Springs 4
3rd do., J. Bartholomew, Markham 2
4th do., A. Thompson, E. Flamboro ..... Trans.
Best two bushels of any other kind of field peas, E. Hagden, Flamboro'..... 6
2nd do., D. Lynn, York Township..... 4
3rd do., Wm. Bell, York township..... 2
4th do., Richard Foley, Darlington..... Trans.
Best bushel of small white field beans, E. Hagden, Flamboro'..... 6
2nd do., Walter Riddell, Hamilton township.. 4
3rd do., Jas. Moore, Etobicoke..... 2
4th do., Coridon Leurs, Salford..... Trans.
Best bushel of large white field beans, Richard Foley, Darlington..... 6
2nd do, John Richardson, North Pelham..... 4
3rd do., Coridon Leurs, Salford..... 2
4th do., Walter Riddell, Hamilton township.. Trans.
Best two bushels indian corn in the ear (white). F. Morrison, Hamilton 6
2nd do., H. J. Brown, Niagara..... 4
3rd do., R. Spooner, Kingston..... 2
4th do., G. J. Miller, Virgil..... Trans.
Best two do. (yellow), H. J. Brown, Niagara.. 6
2nd do., F. Morrison, Hamilton..... 4
3rd do., J. B. Aylsworth, Newburgh..... 2
4th do, A. Thompson, East Flamboro'..... Trans.
Best bale of hops, not less than 112 lbs., J. A. Cooledge, Demorestville..... 15
2nd do., Moses Wilson, West Nissouri..... 15
3rd do., Alex. McKenzie, Nissouri..... 10

CLASS 28—SMALL FIELD SEEDS, FLAX, HEMP, ETC— 74 ENTRIES.

JUDGES—Jno. M. Lantie, St. Catharines; Jno Tennant, Paris; and John Weir, Jr., West Flamboro'.

Best bushel timothy seed, A. Thompson, East Flamboro'..... $6
2nd do., John Richardson, North Pelham.... 4
3rd do., Coridon Leurs, Salford..... 2
4th do., George Hoare, Auburn..... Trans.
Best bushel of clover seed, David Davis, Louth. 6
2nd do., Richard Foley, Darlington..... 4
3rd do., E. D. Foley, Darlington..... 2
4th do., John Richardson, North Pelham.... Trans.
Best half bushel of Alsike clover seed, John Richardson, North Pelham..... 6
2nd do., H. M. Thomas, Brooklin..... 4
Best bushel of flax seed, John Richardson, North Pelham..... 6
2nd do., Joseph Gibb, Hamilton township.... 4
3rd do, R. D. Foley, Darlington..... 2
Best Swedish turnip seed, from transplanted bulbs, not less than 12 lbs., John Crumb, Hampton..... 6
2nd do., Richard Foley, Darlington..... 4
Best 12 lbs. white Belgian field carrot seed, Richard Foley, Darlington..... 6
2nd do., E. D. Foley, Darlington..... 4
Best 12 lbs. of long red mangel wurzel seed, R. D. Foley, Darlington..... 6
2nd do. John Harkers, Kingston..... 4
Best 12 lbs of yellow globe mangel wurzel seed, John Pratt, Cobourg..... 6
Best bush. tares, P. Bartholomew, Markham.. 6
2nd do. George Taylor, Scarboro'..... 3
3rd do. Wm. Thompson, Whitby ..... Trans.
Best bush. buckwheat, John Richardson, North Pelham 4
2nd do P. Bartholomew, Markham 2
3rd do. Robert Conlter, Etobicoke..... Trans.
Second best bush. millet, John Smith, Burford 2
Best 10 lbs. of cured tobacco leaf, growth of Ontario, Robt Shearer, Niagara..... 4
2nd do. Angus Shaw, Kingston..... 3

EXTRA PRIZE.—Josh Scales, Toronto, assortment of Tobacco Leaf, American growth.

CLASS 29—FIELD ROOTS, &c—344 ENTRIES.

JUDGES—Peter Adamson, Godarich; Wm. Stitt, Springvale; Wm. McLaren, Melrose; and Wm. McLeod, Summerstown.

Best bushel of early Goderich Potatoes, John Ross, Toronto $3
2nd do., J. Macnamara, York Township 2
3rd do., Robert Worm, Brockton 1
Best bushel Garnet Chills, Wm. Westtington, Hamilton Tp 3
2nd do., Hugh Elliott, Scarboro 2
3rd do., R. Spooner, Kingston 1
Best bushel Pinke Potatoes, T McKvers, Hamilton Township 3
2nd do., C. Westington, Cold Springs 2
3rd do., James Moore, Etobicoke 1
Best bushel Early Rose Potatoes, Harvey Draper, Bowmanville 3
2nd do., C. Westington, Cold Springs 2
3rd do., A. A Baker, Guelph 1
Best bushel Peachblows. M. Harrison, Cooksville 3
2nd do., Philip Armstrong, York Township 2
3rd do., C. Westington, Cold Springs 1
Best bushel Buckeyes or Carters, J. Moore, Etobicoke 3
2nd do., J. Macnamara, York Township 2
3rd do., Robert Worm, Brockton 1
Best bushel Harrison Potatoes, Harry Webb, York township 3
2nd do., J. Macnamara, York Township 2
3rd do., James Moore, Etobicoke 1
Best bushel of any other sort of Potatoes, Robert Shearer, Niagara 3
2nd do., A. Thompson, E. Flamboro 2
3rd do., C. Westington, Cold Springs 1
Best collection of Field Potatoes, a peck of each sort, named, Robert Shearer, Niagara 4
2nd do., James Moore, Etobicoke 3
3rd do., Wm. Lee, York Township 2
Best eight roots Marshall's Improved Swede Turnips, J. S Armstrong, Guelph 3
2nd do., Jas Anderson, Guelph 2
3rd do., J. and R. Hunter, Pilkington 1
Best eight roots green-top Swede turnip, J. S. Armstrong, Eramosa 3
2nd do., Henry Browne, Toronto 2
Best eight roots Skirving's Swede turnips, J. and R. Hunter, Pilkington 3
2nd do., James McCowan, Scarboro' 2
3rd do., Thomas McCrae, Guelph 1
Best eight roots white globe turnips, George Carruthers, Maldimand 3
Best eight grey stone turnips, James Moore, Etobicoke 3
2nd do., George Carruthers, Haldimand 2
Best twelve roots red carrots, Wm. Burgess, Mimico 3
2nd do., Harvey Draper, Bowmanville 2
3rd do., Henry Browne, Toronto 1
Best 12 roots white or Belgian carrots, William Burgess, Mimico 3
2nd do., Harry Webb, York township 2
3rd do., Henry Smith, Yorkville 1
Best 8 roots yellow globe mangel wurzel, Wm. Burgess, Mimico 3
2nd do, Harry Webb, York township 2
3rd do, Simpson Rennie, Markham 1
Best 8 roots long yellow mangel wurzel, Wm. Burgess, Mimico 3
2nd do, Thomas McCrae, Guelph 2
3rd do, Robert Worm, Brockton 1
Best 3 roots of kohl rabi, William Burgess, Mimico 3
2nd do, R. H. Ramsay, Cobourg 2
Best 3 roots white sugar beet, Wm. Burgess, Mimico 3
2nd do, Henry Smith, Yorkville 2
3rd do, Thomas McCrae, Guelph 1
Best 12 roots parsnips, William Burgess, Mimico 3
2nd do, Wm. Benton, Guelph 2
3rd do, James Moore, Etobicoke ..... Trans.
Best 12 roots chickory, Wm Benton, Guelph.. 3
2nd do., Wm. Burgess, Mimico 2
Best two large squashes for cattle, Samuel Wood, Islington 3
2nd do., James Moore, Etobicoke 2
Best two mammoth field pumpkins, James Moore, Etobicoke 3
Best four common yellow field do, Jas. Young, Chester 3
2nd do. James Wright, York 2
3rd do. F. Nicholson, Leslieville ... Trans.

EXTRAS.—John S. Armstrong, Guelph, for sweet turnips (Laing's), highly commended; John McCarter, York township, bushel Early Rose potatoes, second crop on same ground this year, honourable mention; Richard Johnson, first crop seedling potatoes from the seed balls, commended.

NOTE BY THE JUDGES.—We would beg to make honourable mention of a second crop of Early Rose Potatoes, raised this year from off the same ground, by John McCarter, York township We would also recommend a first crop of Seedling potatoes, raised this year from seed balls, by Richard Johnston, Toronto. We would beg to highly recommend a special entry of Laing's Improved Swede Turnip, by John S. Armstrong, Guelph.

HORTICULTURAL PRODUCTS.

CLASS 30.—FRUIT—96 ENTRIES.

JUDGES.—W. H. Mills, Hamilton; Wm Saunders, London; S. J. J. Brown, Niagara; and A. Sarvos, Niagara

Best 30 varieties of apples, correctly named, six of each, Geo. Leslie & Son, Leslieville.. $8
2nd do. D W. Beadle, St. Catharines.. 6
Best 20 varieties do., correctly named, six of each, Geo. Leslie & Son, Leslieville 5
2nd do J. A. Bruce & Co., Hamilton 3
Best 6 varieties of fall table apples, named, six of each, D W. Beadle, St. Catharines 3
2nd do., Geo. Leslie & Son, Leslieville 2
Best 5 varieties of fall cooking apples, named, six of each, J. A. Bruce & Co, Hamilton. 3
2nd do, D W Beadle, St. Catharines 2
Best 6 varieties winter table apples, named, six of each, D. W. Beadle, St. Catharines 3
2nd do, Geo. Leslie and Son, Leslieville 2
Best 6 varieties winter cooking apples, named, six of each, D. W. Beadle, St. Catharines.. 1
2nd do, J. A. Bruce, Hamilton 2
Best collection, not less than 15 varieties, pears, correctly named, three of each, D. W. Beadle, St. Catharines 3
2nd do, Geo Leslie and Son, Leslieville 2
Best 6 varieties do, correctly named, six of each, J. A Bruce, Hamilton, pears 5
Best 6 varieties plums, correctly named, six of each, Geo Leslie and Soo, Leslieville 3
Best collection grapes, grown in open air, not more than 12 varieties, two bunches each, named, Charles Arnold, Paris 5
2nd do. J. C. Kilburn, Beamsville 3
Best three varieties of black grapes, grown in open air, two bunches each, correctly named, Charles Arnold Paris 3
2nd do., J. C Kilburn, Beamsville 2
Best 3 varieties of grapes, any other colour, grown in open air, two bunches each, correctly named, J. C Kilburn, Beamsville.. 2
2nd do., Charles Arnold, Paris 1
Best collection of grapes, not more than 12 varieties, grown under glass, one bunch of each sort, correctly named, J. Gray & Co, Brockton 3
2nd do., Geo Leslie and Son, Leslieville 5
Best 3 varieties black grapes, grown under glass, J. Gray & Co., Brockton 4
2nd do., J. A. Bruce, Hamilton 3
Best 3 varieties white grapes, grown under glass, J Gray & Co., Brockton 2
2nd do., J. A Bruce, Hamilton 3
Best and heaviest one bunch Black Hamburg grapes, grown under glass, J. Gray & Co., Brockton 2
2nd do, G. Leslie & Son, Leslieville 2
Best and heaviest one bunch black grapes, any other kind, grown under glass, J. Gray & Co., Brockton 3
2nd do, J. A. Bruce, Hamilton 2
Best and heaviest one bunch white grapes, grown under glass, J. Gray & Co., Brockton 3
2nd do, G. Leslie & Son, Leslieville 2
Best display of fruit, the growth of exhibitor, distinct from other entries, three specimens of each sort, named, grown under glass and in the open air, G. Leslie & Son, Leslieville 15

DOMESTIC WINES

Professional and Commercial List.

Best half-dozen dry wines James Brown, Toronto $12
2nd da, Samuel Conover, Toronto Township.. 8
Best half-dozen sweet wine, V. Casci, Toronto. 7
2nd do, James Brown, Toronto 5

NOTE BY THE JUDGES.—The Judges are decidedly of opinion that the number of Pears in section 7 should be limited. One exhibitor shows 15 varieties another 75, which is confusing We think it would be much better to word the next list thus:- Best 15 varieties Pears, 3 of each; and if it is thought advisable to offer a prize for a larger number, let it be definite - say 30, 40 or 50 varieties.

CLASS 31—FRUIT—314 ENTRIES.

General List. Professional Nurserymen excluded

JUDGES—D. W. Beadle, St. Catharines; A. F. Wood. Madoc; D. Caldwell, Galt; W. Holton, Hamilton; and John Lawrence, Brockville.

Best twenty varieties apples, correctly named, three of each, G. J Miller, Virgil $10
2nd do. John Stewart, Colborne 8
3rd do, R. Carlie, Niagara 6
Best ten varieties do, correctly named, three of each, G. J. Miller, Virgil 4
2nd do, R. Currie, Niagara 3
3rd do. Robert Warren, Niagara 2
Best four varieties dessert apples, correctly named, six of each, G. J. Miller, Virgil 3
2nd do, J. Forsyth, York Township 2
3rd do, Robert Warren, Niagara ..... Vol. Trans.
Best four varieties cooking do, correctly named, six of each, G. J. Miller, Virgil 3
2nd do, S. J. J. Brown, Niagara 2
3rd do, Samuel Wood, Islington ..... Vol. Trans
Best twelve snow apples, Samuel Wood, Islington 3
2nd do. John Shuttleworth, Weston 2
Best twelve fall pippins, F. Morrison, Hamilton 2
2d do, G Cooper, York township 1
Best twelve gravensteins, G. J. Miller, Virgil. 2
2d do, H. J. Browne, Niagara 1
Best twelve any others variety fall apple, Saml. Wood, Islington 2
2nd do, James Best, Leslieville 1
Best 12 Ribbon pippin, G. J. Miller, Virgil.. 2
2nd do do G. Cattle, Yorkville 1
Best 12 Æsopus Spitzenburg, H J. Brown, Niagara 3
2nd do do Sam. Wood, Islington.. 2
Best 12 Baldwin, H. J. Brown, Niagara 1
2nd do do, Wm. Harcourt, Goderich township 2
Best 12 Rhode Island Greening, F. Morrison, Hamilton 1
2nd do do, G. J. Miller, Virgil 2
Best 12 Roxbury Russett, G. J. Miller, Virgil.. 1
2nd do do, H. J. Brown Niagara 2
Best 12 American Golden Russett, H. J. Brown, Niagara 3
2nd do do, G. J. Miller, Virgil 2
Best 12 Swaar Pomme Gris, S. J. J. Brown, Niagara 1
2nd do do, Robert Wood, Niagara.. 2
Best 12 Pomme Gris, H. J. Brown. Niagara 1
2nd do do, John Cudmore, York township 2
Best 12 Northern Spy, H. J. Brown, Niagara.. 1
2nd do do, S. J. J. Brown do 2
Best 12 any other variety, (winter), G. Cooper, York township 1
2nd do do. Geo. Savage, Toronto township 2
Best 12 seedling apples, John Shuttleworth, Weston 1
2nd do do, Wm. Horar, Agincourt.... 2
Best collection of pears, 20 varieties, three of each, Robert Burnett, Hamilton 10
2nd do do, G. J. Miller, Virgil 8
3rd do do, Robert Currie, Niagara 6
Best 10 varieties pears, 3 of each, Robert Burnett, Hamilton 5
2nd do do. J. Young, Hamilton 3
3rd do do, Robert Currie, Niagara.. 2
Best 4 varieties, 3 of each, G. J. Miller, Virgil 3
2nd do do, W. A. Smith. Brantford township 2
Best 6 Bartlette Robt. Currie Niagara 2
2nd do do, G. J. Miller, Virgil 1
Best 6 White Doyenne, E C. Fearnside, Hamilton 2
2nd do do, G. J. Miller, Virgil 1
Best 6 Flemish Beauty, H. J Brown, Niagara.. 2
Best 6 Louise Bonne de Jersey, Robert Currie, Niagara 2
2nd do do, John Sharman, Oakville.... 1
Best 6 Belle Lucrative, John Sharman, do.... 2
Best 6 Duchesse d'Angouleme, Robt. Stibbard, Burlington 2
2nd do. J. Young, Hamilton 1
Best 6 Beurre Rose, Robert Currie, Niagara.. 2
2nd do., G. J. Miller, Virgil 1
Best 6 Beurre Clairgeau, Robert Currie, Niagara 2
2nd do., Geo. Murray, York Township 1
Best 6 winter Nelis W. A. Smith, Brantford Township 2
2nd do, J. Young, Hamilton 1
Best 6 Glout Morceau, R. Burnett, Hamilton.. 2
2nd do., W. A. Smith, Brantford township.... 1
Best 6 Vicar of Winkfield, J. Young, Hamilton 2
2nd do., Robert Currie, Niagara 1
Best 6 Easter Beurre, G. J. Miller, Virgil..... 2
2nd do., J. Young, Hamilton 1
Best 6 of any other variety of fall pear, Robt. Warren, Niagara 2
2nd do., Robt. Burnett, Hamilton 1
Best collection, not less than six varieties, plums, correctly named, 6 of each, David Allan, Guelph 4
2nd do., M. C. Schofield, Berlin 3
3rd do., Wm. Benham, Guelph 1
Best 12 dessert plums, one variety, correcly named. David Allan, Guelph 2
2nd do. A. M. Ross, Goderich 1½
Best 12 cooking plums, one variety, correctly named, Wm. Benham, Guelph 2
2nd do, do, Robert Currie, Niagara..... 1½
Best 6 variety peaches, correctly named, H. J. Brown, Niagara 3
2nd do G. J. Miller, Virgil 2
3rd do, Robert Warren, Niagara 1
Best 6 peaches, one variety, correctly named, Robert Warren, Niagara 3
Best 6 peaches, white flesh, one variety, correctly named, G. J. Brown, Niagara.. 3
3rd do. R. Currie, Niagara 2
Best 6 peaches, yellow flesh, one variety, correctly named, R. Warren, Niagara..... 3
2nd do, Robt, Currie, Niagara 2

Best collection of grapes grown in open air, not less than 12 varieties, 2 bunches of each, Jas. Taylor, St. Catharines 5
2nd do, A. M. Ross, Toronto 3
3rd do., Jas. Brown, Goderich 2
Best 6 varieties, open air, two bunches of each, Jas. Taylor, St. Catharines 3
2nd do, A. M. Ross, Goderich 2
3rd do, J. Forsyth, York township 1
Best 3 bunches Concord grapes, John Sharman, Oakville 2
2nd do do J. and G. Symes, Toronto 1
3rd do do A. A. Baker, Guelph.... 1
2nd do, J. Forsyth, York township 1
Best 3 bunches Delaware, S. J. J. Brown, Niagara 2
2nd do, Robert Currie, do 1
Best 3 bunches Adirondac, Thomas Brownlie, Scarboro 2
Best 3 bunches Diana, James Brown, Toronto.. 2
2nd do. J. Forsyth, York Township 1
Best 3 bunches Creveling, James Taylor, St. Catharines 2
2nd do., Thomas Brownlie, Scarboro 1
Best 3 bunches Rogers' 4, Jas. Taylor, St. Catharines 2
Best 3 bunches Rogers', 19, J. Forsyth, York township 1
2nd do, James Taylor, St. Catharines 2
Best 3 bunches Hartford Prolific, Thos. Brownlie, Scarboro 2
2nd do., A. M. Ross, Goderich 1
Best 3 bunches any other variety, Geo. Durand, Niagara 2
2nd do., James B. Hay, Waterdown 1
Best collection grapes, grown under glass, not more than 12 varieties, one bunch each, correctly named, J. Young, Hamilton.... 5
2nd do., Thomas Lee, Toronto 3
Best 3 bunches black Hamburg grapes, Thos Evans, Belleville 3
2nd do., J. Young, Hamilton 2
3rd do., John sharman, Oakville 1
Best 2 bunches black grapes, any other variety, Thos. Evans, Belleville 2
2nd do., J. Young, Hamilton 1
3rd do., Thos. Lee, Toronto 1
Best 2 bunches white grapes, grown under glass, correctly named, Thos. Lee, Toronto 2
2nd do., J. Young, Hamilton 1
Best 6 quinces, S. J. J. Brown, Niagara 2
2nd do., Robert shearer, do 1
Best green flesh melon, G. Cooper, York Township 2
2nd do., F. Nicholson, Leslieville 1
Best red or scarlet flesh melon, A. W. Taylor, Barton 2
Best water melon, W. Burgess, Etobicoke.... 1
2nd do., F. Nicholson, Leslieville 2
Best 3 varieties cultivated crab, one dozen each, C. Walker, Virgil 2
2nd do, Robart Currie, Niagara 1

DOMESTIC WINES.

General List. Professional and Commercial Wine-Makers excluded.

Best three bottles dry wine, James Taylor, St. Catharines $7
2nd do, J. Forsyth, York Township 4
Best 3 bottles sweet wine, Henry Browne, Toronto 3
2nd do, James Taylor, St. Catharines 2
Best 3 bottles parkling wine, James Taylor, St. Catharines 5

COLLECTION.

Open to all—Professional and General.

The best collection of named varieties of apples, pears, peaches, grapes, plums, crabs, and quinces, contributed by any one person, or any number of persons. or any Society, (the 13th rule not to apply), Horticultural Society of Hamilton, Diploma and ..... $ 40
2nd do, Galloway Society of Lincoln 20
Extra Prize—Variety ornamental apples, Wm Lea, York Township 2

CLASS 32—GARDEN VEGETABLES—450 ENTRIES.

Judges—George McManus, Mono Mills; John Mosley, Goderich; W. McKenzie Ross, Chatham; and John Richardson.

Best 12 roots of salsify, H. Draper, Bowmanville $2
2nd do, F. Nicholson, Leslieville 1 50
Best 3 heads cauliflower, J. Wright, Yorkville 2
2nd do, G. Tattle, Yorkville 1 50
3rd do, A. W. Taylor, Barton 1
Best 3 heads cabbage (summer), G. Cooper, York Township 2
2nd do, J. Holmes, Scarboro 1 50
3rd do, F. Nicholson, Leslieville 1
Best 3 heads cabbage (winter), F. Armstrong, York township. 2
2nd do H. Draper, Bowmanville. 1 50
3rd do Wm Burgess, Etobicoke 1
Best 4 sorts winter cabbage, including savoys, 1 of each sort, H. Draper, Bowmanville.... 3
2nd do Wm. Burgess, Etobicoke 2
3rd do F. Nicholson, Leslieville 1
Best 3 heads red cabbage, H. Draper, Bowmanville 2
2nd do J. and G. Symes, Toronto 1 50
3rd do J. Wright, Yorkville.... 1
Best 12 carrots for table, long red, A. W. Taylor, Barton 2
2nd do H. Draper, Bowmanville 1 50
3rd do A. A. Baker, Guelph.... 1
Best 12 intermediate or half-long carrots, J. Young, Chester 2
2nd do J. and G. Symes, Toronto 1
3rd do do A. A. Baker, Guelph.... 1
Best 12 early horn carrots, A. W. Taylor, Barton 2
2nd do D. Allan, Guelph..... 1 50
3rd do E. C. Fearnside, Hamilton 1
Best 12 table parsnips, D. Allan, Guelph 2
2nd do A. A. Baker, Guelph.... 1 50
3rd do F. Nicholson, Leslieville 1
Best 6 roots of white celery, W. Burgess, Etobicoke 2
2nd do J. Wright, Yorkville.... 1 50
3rd do J. Macnamara, York Township 1
Best 6 roots of red celery, W. Burgess, Etobicoke 2
2nd do J. Wright, Yorkville.... 1 50
3rd do F. Nicholson, Leslieville 1
Best dozen capsicums (ripe) J. Nicholson, Leslieville 2
2nd do A. W. Taylor, Barton 1 50
3rd do Wm. Lottridge, do 1
Best collection of capsicums (ripe) J. Nicholson, Leslieville 3
2nd do F. Nicholson, Leslieville.. 2
3rd do G. Cooper, York township. 1
Best 3 egg-plant fruit, purple, A. W. Taylor, Barton 2
2nd do L. S. Lundy, Drummondville 1 50
3rd do C. S. Gzowski, Toronto.... 1
Best 12 tomatoes (red), A. W. Taylor, Barton 2
2nd do J. Hamilton, Toronto 1 50
3rd do J. Rose, Toronto 1
Best 12 tomatoes (yellow,) E. C. Fearnside, Hamilton 2
2nd do J. Harper, Kingston..... 1 50
3rd do F Nicholson, Leslieville 1
Best assorted collection of tomatoes, E. C. Fearnside, Hamilton 3
2nd do George Cooper, Toronto township 2
3rd do J. Nicholson, Leslieville.. 1
Best blood beets, long, D. Allan, Guelph 2
2nd do do A. A. Baker, Guelph 1 50
3rd do do Wm. Benham, Guelph.... 1
Best peck of white onions, William Lottridge, Barton 2
2nd do A. A. Baker, Guelph..... 1 50
3rd do James Wright, Yorkville.. 1
Best peck of yellow onions, Joseph Fennett, sen., Bradford 2
2nd do S Turner, York township 1 50
3rd do Wm. Lottridge, Barton.... 1
Best peck of red onions, H. Brown, Toronto.. 2
2nd do J. Fennet, sen., Bradford 1 50
3rd do G. J. Miller, Virgil..... 1
Best 2 quarts pickling onions, J. Wright, Yorkville 1 50
2nd do T. Irondeld, Toronto 1
Best 12 white turnips (table,) A. W. Taylor, Barton 2
2nd do Wm. Lottridge, Barton.... 1 50
3rd do J. and G. Symes, Toronto 1
Best 12 yellow turnips (table,) William Benham Guelph 2
2nd do F. Nicholson, Leslieville.. 1 50
3rd do G. Cooper, York township 1
Best 12 ears sweet corn, fit for the table, A. W. Taylor, Barton 2
2nd do J. Wright, Yorkville 1 50
3rd do G. Tattle, Yorkville 1
Best 6 varieties of potatoes for garden cultivation, half peck of each sort, named, H. Draper, Bowmanville 2
2nd do J. Cuppage, Orillia 1 50
3rd do E. Shearer, Niagara 1
Best 3 summer or fall table squashes, H. Draper, Bowmanville 2
2nd do F. Irondeld, Toronto 1 50
Best 3 winter table squashes, William Burgess, Etobicoke 2
2nd do Samuel Wood, Islington.... 1
3rd do J. Wright, Yorkville..... 1 50
Best 2 vegetable marrow, J. Russell, Toronto.. 2
2nd do G. Cooper, York township 1 50
Best and greatest variety of vegetables (distinct from other entries), each kind named, G. Tattle, Yorkville 4
2nd do., G. Cooper, York township 3

EXTRA ENTRIES—Harvey Draper, Bowmanville, 6 leeks, 1st prize, 50c.; J. and J. Symes, Toronto, 3 citrons, 1st prize. J. Russell, Toronto, 1 basket of garlic, 1st prize. 50c.

CLASS 33—PLANTS AND FLOWERS—118 ENTRIES.

JUDGES—Charles Meston, Hamilton; W. H. Boulton, Toronto; David Culbert, St. Catharines.

Best dozen dahlias, standard varieties, named, Geo. Leslie and Son, Leslieville..... 2
2nd do., C. S. Gzowski, Toronto..... 1 50
Best 12 bouquet dahlias, Geo. Leslie and Son, Leslieville..... 2
2nd do., C. S. Gzowski, Toronto..... 1 50
Best and largest collection of dahlias, George Leslie and Son, Leslieville 3
2nd do., C. S. Gzowski, Toronto..... 4
Best two large vase bouquets, Thomas Lee, Toronto..... 4
2nd best pair side table or fan bouquets, E. S. Fearnside, Hamilton, 2nd prize..... 2
Best hand bouquet, J. M. Hirschfelder, Toronto 2
2nd do., Geo. Tattle, Yorkville 1 50
3rd do., James Fleming, Toronto..... 1
Best bouquet, everlastings, Jas B. Hay, Waterdown 2
2nd do., C. E. Fearnside, Hamilton..... 1 50
3rd do., David Davis, Louth..... 1
Best collection of green-house plants, not less than 12 specimens, in flower, T. Wakefield, Yorkville 5
2nd do., Thomas Lee, Toronto..... 3
3rd do., C. S. Gzowski, Toronto..... 2
Best 12 panzies, C. E. Fearnside, Hamilton.... 2
Best 6 fuchsias, in flowar, C. S. Gzowski, Toronto..... 4
Best collection of annuals in bloom, named, J. B. Hay, Waterdown..... 2
2nd, do., S. C. Fearnside, Hamilton..... 1 50
3rd do., Alex. McWiggan, Toronto..... 1
Best 6 cockscombs, D. Allan, Guelph..... 2
2nd do., Robert Warren, Niagara..... 1 50
3rd do., James Fleming, Toronto..... 1
Best 6 balsams, in bloom, Alex. McWiggan, Toronto..... 2
Best 12 German asters, Thos. Pallister, Guelph 2
2nd do., J. B. Hay, Waterdown..... 1 50
Best collection of asters, J. B. Hay, Waterdown..... 2
2nd do., A. McWiggan, Toronto..... 1 50
Best collection of 10 weeks' stock, D. Allan, Guelph..... 2
2nd do., Thomas Pallister, Guelph..... 1 50
3rd do., Alex. McWiggan, Toronto..... 1
Best collection of Bourbon, Tea and Noisette roses, named, James Fleming, Toronto.. 3
Best 3 roses of any one variety, James Fleming, Toronto..... 3
2nd do., J. Hirschfelder, Toronto..... 2
Best floral design for supper table, J. Hirschfelder, Toronto..... 5
Best 12 verbenas, named, Samuel Turner, York Township..... 2
2nd do., G. Tattle, Yorkville..... 1 50
Best collection of verbenas, named, James Fleming, Toronto..... 3
Best 5 petunias, single, J. B. Hay, Waterdown 2
2nd do., A. McWiggan, Toronto..... 1
Best 5 petunias, double, E. C. Fearnside, Hamilton..... 2
Best collection, perennial phloxes, J. Gray & Co., Brockton..... 2
2nd do., A. McWiggan, Toronto..... 1 50
Best collection of gladiolus, James Fleming, Toronto..... 2
Best collection double zinnias, Thomas Pallister, Guelph..... 2
2nd do., J. B. Hay, Waterdowo..... 1 50
3rd do., E. C. Fearnside, Hamilton..... 1
Best display of plants in flower, distinct from other entries, C. S. Gzowski, Toronto..... 10
2nd do., T. Wakefield, Yorkville 6
3rd do., Thos. Lee, Toronto..... 4

EXTRA ENTRIES.—James Fleming, Toronto, collection of foliage plants, 1st prize, $2 00; G. Tattle, Yorkville, collection of seedling verbenas, 1st prize, $2 00; Thomas Lee, Toronto, design of house and garden, 1st prize, $3 00.

DAIRY PRODUCTS, &c.

JUDGES—A. McCellar, Ottawa; J. Rannie, Allanburgh; Wm. Fisher, Cooksville; W. K. Atkinson, Ailsa Craig; Daniel Vanderwaters, Belleville; Angus Cook, Grantham; and T. McEwen, Cobourg.

CLASS 34—DAIRY PRODUCTS, HONEY, BACON, ETC.

Best firkin of butter, in shipping order, not less than 56 lbs, Donald Clark, Morriston. $12
2nd do, John McLurge, Lobo..... 10
3rd do, A. McFarland, Etobicoke..... 8
4th do, Wm. Major, Pickering..... 6
5th do, J. Grant, Puslinch..... 4
6th do, George Stranger, Nassagaweya..... 2
Worthy of a prize, Charles Porter, Trafalgar.
Best butter, not less than 25 lbs in firkins, crocks or tubs, D. Clark, Morristown..... 8
2nd do, O. Shaver, Etobicoke..... 6
3rd do, D. Davis, Louth..... 4
4th do, J. Patton, Scarboro..... 3
5th do, A. McFarlane, Etobicoke..... 2
6th do, M. Jones, Whitevale, Pickering..... 1
Worthy of a prize, S. Wood, Islington.
Best 3 factory cheeses, not less than 50 lbs each, with statement of number of cows, and management of factory, A. McBean, Galt..... 30
2nd do, P. Hinman, Haldimand..... 25
3rd do, Thomas Galentyne, Scarbrigville..... 20
Best cheese, dairy, not less than 30 lbs, A. Shaw, Niagara..... 12
2nd do, J. Patton, Scarboro..... 10
3rd do, J. Franks, Dorchester..... 8
4th do, A. Glendinning, Scarboro..... 6

Best 2 Stilton cheeses, not less than 12 lbs, A. Shaw, Missouri 3
2nd do, H. K. Parsons, Guelph 3
Best honey, in the comb, not less than 10 lbs, H. M. Thomas, Brooklin 4
2nd do, Thomas Ramage, Richview 2
3rd do, J. Sadd, Toronto 1 50
4th do, W. D. Stodart, Bradford ..... Trans.
Best jar of clear honey, J. S. Armstrong, Guelph 4
2nd do, Wm. Fraser, Esquesing 2
3rd do, G. Miller, Markham 1 50
4th do, J. H. Thomas, Brooklin ..... Trans.
Best side cured bacon, Jas. Park, Toronto 4
Best ham, cured, James Park, Toronto 3

EXTRA ENTRIES—James Park, Toronto, roll of spiced bacon, 1st prize, $2 00; spiced beef ham, 1st prize, $1 00; dried beef, 1st prize, $1 00; and belly bacon, 1st prize, $1.

CLASS 35—MISCELLANEOUS—12 ENTRIES.

JUDGES—Professor Buckland, Toronto; Thos. Stock, Waterdown; and John Weir, Jr., West Flamboro

John H. Flett, Sarnia, Flett's patent horse shoeing and veterinary stocks, highly commended; Hendrie and Co, Toronto, rock salt, for stock, commended; John Parker, Seaton village, Toronto Tp., bone dust, highly commended; superphosphate of lime, highly commended; John Macown, Belleville, collection of Canadian grasses, highly commended; John Grenville, Thoroid, door and gate fastening, highly commended; Charles Garrich, Montreal, Simpson's cattle spice.

ARTS AND MANUFACTURES DEPARTMENT.

(COMPETITION OPEN TO THE WORLD.)

CLASS 36—CABINET WARE AND OTHER WOOD AND HAIR MANUFACTURES—79 ENTRIES.

JUDGES—Geo. Stephens, Cobourg; D. B Garton Barrie, and Wm. Simpson, Berlin.

CABINET WARE.

Bedroom furniture, set of, Jacques and Hay, Toronto $15
2nd do., Bowmanville Furniture Manufacturing Co. 8
Carving in wood, decorative, not connected with any other article on exhibition, Bowmanville Furniture Manufacturing Co 10
Centre table, Jacques and Hay, Toronto 8
Drawing-room furniture, set of, Bowmanville Furniture Manufacturing Co. 15
2nd do., Jacques and Hay, Toronto 8
Sideboard, Jacques and Hay, Toronto, diploma and 8

MISCELLANEOUS.

Brushes, an assortment, Chas. Boeckh, Toronto $8
2nd do., A. Rodsiter and Son, Toronto 4
Coopers' work, Cordion Lemay, Salford 6
Corn brooms, 1 doz., Nelson, Wood & Co., Toronto 2
2nd do., Allan Easson, Hamilton 1
Joiners' Work, assortment of, McBean Bros., Toronto 5
Turning in wood, collection of specimens, Jacques and Hay, Toronto 6
2nd do., William Black, Bowmanville 3
Veneers from Canadian woods, undressed, W. Clements, Newburg 8
Veneers from Canadian woods, dressed and polished, never previously exhibited, and not connected with other articles on exhibition, F. S. Clench, Cobourg 8
Wash tubs and pails, factory made, three of each. Cordion Lears, Salford 4

EXTRAS—Fred. Elliott, Woodbridge, washing machine, $3 00; Geo. Commander, Toronto, wash tubs, made by hand, 1st prize, $3 00; S. R. Briggs, Toronto, shingles, 1st prize, $1 00; John Shaw, Whitby, housekeeper's pastry table, $2 00; J. A. Glendinning, Toronto, a pleasure boat, $5; Bowmanville Manufacturing Co, a hall rack, $1; G. J. Baker, Oakville, washing machine, $3 00; Joseph Copley, Toronto, wigs, plaits, braids, and hair tresses, 1st prize, $5; F. A. Noverre, Toronto, family pleasure boat, 1st prize, $7 00; F. S. Clench, Cobourg, fret work brackets, $1 00; portable desk, $3 00; Samuel Paling, Woodstock, palings, and Ontario balanced window blind lifter, 1st prize, $1 00; R. Leonard Oshawa, patent spring mattrass, $3 00; Odell and Shorey, Napanee, Odell's Royal Canadian clothes wringer, 1st prize, $3 00; Joshua Johnston, Lindsay, patent air-tight adjustible door threshold, 1st prize, $2 00; Valentine Spiers, New Lowell, 25 lbs manufactured hair, 1st prize, $3 00; C. K. Jones, Bronte, a combined mop and scrubber, 1st prize, $1 00; John McDonald, Hamilton, bird cage, 1st prize, $1 50; Thos. McMurchy, Glen William, patent mangle, 1st prize, $4 00; Jas. Thompson, Toronto, bagatelle table, 1st prize, $5 00; Hugh Wright, Hamilton, 2 work boxes, inlaid Canadian wood, 1st prize, $3 00; Wm. Peacock, Montreal, collection of cricket, base ball bats, etc., 1st prize, $4 00; David Fisher, Scarboro, wood work (mantel piece), 1st prize, $4 00; Phillips and Oliver, Toronto, washable gilt mirror frames; do, do, imitation rosewood and gilt mirror, one prize, $5 00; Wm Rodgers, Toronto, small tool box, 2nd prize; Moorey and Roothewill, Ingersoll, hammock or lounging chair, 2nd prize, $2 00; D. A. Cooper, Esquesing, 2 bunches sawed shingles, $1 00; W. B. & C. P. Chisholm, Oakville, samples of fruit baskets, $2 00; Joshua Johnston, Lindsay, patent air-tight window stops and slips, $1 50; Phillips and Oliver, Toronto, washable gilt mouldings, $3 00; William Rodgers, Toronto, small tool box, $2; do, do, writing desk, $3 00; Mrs. Ellis, Toronto, curls, braids etc., for ladies hair dressing.

CLASS 37—CARRIAGES AND SLEIGHS, AND PARTS THEREOF—112 ENTRIES.

JUDGES—Josiah Holmes, St. Catharines; Amos Martin, Goderich; and M. O. Donovan, Welsby.

Axle, wrought iron, Byers and Mauhan, Ganonoque $4
2nd do, do, John Doty, Oakville 2
Buggy, double seated, covered, J. B. Armstrong and Co., Guelph 10
2nd do, Woods and Lyons, Brantford 7
Buggy, double seated, uncovered, J. B. Armstrong, Guelph 8
2nd do, W. J. Thomas, London 6
Buggy, single seated, covered, J. and E. Sprague, Amelisburg 8
2nd do, J. B. Armstrong and Co., Guelph 6
Buggy, single seated, uncovered, J. B. Armstrong and Co, Guelph 7
2nd do, Hutchinson and Burns, Toronto 5
Best buggy, trotting, George Smith, St. Catharines 6
2nd do, W. J. Thompson, London 4
Best carriage, two horse, pleasure, Geo. Smith, St. Catharines 18
2nd do, W. J. Thompson, Middlesex 12
Best carriage, one horse, pleasure, W. H. Vermilyea, Belleville 12
2nd do, W. J. Thompson, London 8
Best carriage, child's (peramhulator), W. M. Wheatley, Guelph 4
2nd do, Noah R. Piper & Son, Toronto 2
Best hubs, carriage, one dozen, John Heard, Lambeth 3
Best sleigh, two horse, pleasure, J. B. Armstrong & Co., Guelph 15
Best sleigh, one horse, pleasure, do 10
Best spokes, carriage, machine made, John Heard, Lambeth 3
Best springs, one set steel carriage, Byers and Penn, Gananoque 5
2nd do, John Doty, Oakville 3
Best sulky, trotting, W. J. Hamill, Grantham 5
2nd do, W. J. Thompson, London 3
Best wheels, 1 pair of carriage, unpainted, J. B. Armstrong & Co., Guelph 4
2nd do, W. J. Thompson, London 3

EXTRAS—John Doty, Oakville, sample waggon skiens, 1st prize, $1; do, sample spring heads, 1st prize; $1; J. C. Cooper, Strathroy, bent cutter knees and benches, waggon hounds, waggon crotches, flange strap or waggon strap, $6; John Hawkins, Frogmore, tire upsetting machine, 1st prize $3; J. B. Armstrong & Co, Guelph, oval hearse, 1st prize, $15; W. J. Thompson London, skeleton waggon, 1st prize; W. J. Hamill, Grantham, skeleton waggon, 2nd prize, $3; J. C. Cooper, Strathroy, clips for buggy shafts, commended; do, iron stakes for waggons and sleighs, commended; George Bell, Orangeville, combined waggon and sleigh, commended; John Webster, Toronto, confectioner's pedlar waggon, commended; J. Hagaman, Oakville, a patent gearing for buggy, commeuded; W. J. Thompson, London, skeleton waggon, $4.

CLASS 38—CHEMICAL MANUFACTURES AND PREPARATIONS—31 ENTRIES.

JUDGES—W. Saunders, London; Dr. Beatty, Cobourg; and Thomas Lawrence, Hamilton.

Best Essential Oils, assortment of, 2nd prize, Peter Irish, Wicklow ..... $ 4
Best medicinal herbs, roots and plants, native growth, John Macoun, Belleville 12

EXTRA ENTRIES (Class 38.)—J. C. D. Clark, Toronto, sample Mott's economic oil for machinery, 1st prize, $2; Montreal Rolling Mills, white lead in barrels, 1st prize, $3; putty, $2; James Robertson, Toronto, white lead paint, 1st prize, $4; also 2nd prize for putty, $3. The following were commended:—Hugh Miller, Toronto, prepared glycerine for the toilet, Chinese garden powders, tick destroyer, and illuminator or burning fluid; A. Dredge & Co, Toronto, writing and copying inks, fancy perfumed inks and mucilage; Brondon & Paton, Toronto, assortment of white lead in kegs; G. B. Stock, Brougham, lubricating machine oil orush, $2.

CLASS 39—DRAWINGS, ARCHITECTURAL AND MECHANICAL; ENGRAVINGS: BUILDING MATERIALS AND CONSTRUCTIONS, POTTERY, &c—36 ENTRIES.

JUDGES.—John Shier, Whitby; Wm. Armstrong, C. E., Toronto.

Best bricks, pressed, 1 doz, Wm. Gibbs, Wellington Square $2
2nd do., Joseph Brown & Co., Davenport 1
Best bricks, kiln-burnt, 1 doz., Wm. Gibbs, Wellington Square 2
Best drawings, architectural, geometrical and perspective view, Grant Heilliwell, Toronto 5
Best drawing of machinery, in perspective, A. M. Gibson, Toronto 4
Best decorative house painting, Wm. Phillips, Toronto 6
Best engraving on wood, with proof, C. F. Damorean, Toronto 6
Best engraving on copper, with proof, J. T. Rolph, Toronto 6
2nd do., Copp, Clark and Co., Toronto 4
Best filterer for water, Wm. Campbell, Hamilton 3
Best lithographic drawing, plain, Copp, Clark and Co., Toronto 6
2nd do., J. T. Rolph, Toronto 4
Best lithographic drawing, colours printed, J. T. Rolph, Toronto 6
2nd do, Copp, Clark and Co, Toronto 4
Best lithographic commercial work, in black or colours, Copp, Clark and Co., Toronto .. 6
2nd do., J. T. Rolph, Toronto 4
best mantlepiece in marble, Robert Forsyth, Toronto 3
Best mathematical, philosophical and surveyor's instruments, collection of, Hearn and Harrison, Montreal 15
2nd do., Chas. Potter, Toronto 10
Best monumental headstone, Robert Forsyth, Toronto 6
Best picture frame, ornamental, gilt, R. W. Laird, Toronto 8
Best pottery, an assortment, Robert Westcott, Peterboro 6
2nd do., Wm. Campbell, Hamilton 4
Best sewerage pipes, stoneware, assortment of sizes, Wm. Campbell, Hamilton 8
Best slates for roofing, Melbourne Slate Co, Melbourne 6
2nd do., Erskine Slate Co, Shefford 4
Best stained glass, collection of specimens, R. Lewis, London 12
2nd do., Joseph McCausland, Toronto 8
Best stench traps for draining, stoneware, Wm. Campbell, Hamilton 3
Best stoneware, an assortment, Welding and Belding, Brantford (also diploma) 8

EXTRAS.—Cleverdon and Coombe, Toronto, patent earth closet, 1st prize, $5; Francis Kennedy, Toronto, Kennedy's Resterer Cement, 1st prize, $1; Jas. Anthors, Toronto, an assortment of artificial limbs, 1st prize, $6; J. House, St. Catharines, patent window fasteners, 1st prize, $1; Geo. Bishop and Co., Montreal, illuminated stamping for steel dies, 1st prize: do., specimen stencil plates, brands and trade marks, one prize, $6; C. K. Jones, Bronte, lever window fastener, 2nd prize, $1; Henry Wandby, Yorkville, artificial stone for building purposes, highly commended; Joseph Brown and Co., Davenport, water urn, highly commended; Copp, Clark and Co., Toronto, lithographic stone and drawing, highly commended; do., assorted specimens of copper plate printing, commended; J. T. Rolph, Toronto, specimens of monograms, commended; do., embossing, commended; Copp, Clark and Co., Toronto, manufacturer's labels, commended; St. Geo. Scarlett, Weston, window press holder, commended; McLaren and Barber, London, India rubber artificial leg, $3; Samuel Meadows, Toronto, one Corrugated mirror plated reflector, $5.

CLASS 40—FINE ARTS—170 ENTRIES.

Professional List—Oil (Originals.)

JUDGES—J. Griffiths, London; D. Fowler, Amherst Island; A. R. Pratt, Bothwell; and W. Armstrong, Toronto.

Best any subject, A. Vogt, Montreal $15
2nd do, F. A. Verner, Sandwich 10
Best animals, from life, A. Vogt, Montreal 12
2nd do, Robert Whales, Burford 8
Best flowers, grouped or single, Henry Martin, Toronto 10
2nd do, James Griffith, London 6
Best figure subject, J. C. Forbes, Toronto 12
2nd do, J. W. Bridgeman, Toronto 8
Best landscape, Canadian subject, F. A. Verner, Sandwich 12
2nd do, T. M. Martin, Toronto 8
3rd do, Henry Martin, Toronto 5
Commended, F. A. Verner, Sandwich.
Best landscape or marine painting, not Canadian subject, F. A. Verner, Sandwich 10
2nd do, C. S. Millard, Toronto 6
Best marine painting, Canadian subject, Robt. Whales, Burford 12
2nd do, T. M. Martin, Toronto 8
Best portrait, J. C. Forbes, Toronto 10
2nd do, Robert Whales, Burford 7
3rd do, T. M. Martin, Toronto 4
Best still life, T. M. Martin, Toronto 10
Commended, T. M. Martin, Toronto.

Amateur List—Oil (Originals).

Any subject, Robert Crocket, Hamilton 8
Miss Carty, Toronto, equal 8
do do, highly commended ....
Animals from life, 2nd prize, Robert Whales, Burford 5
Best landscape or marine view, Canadian subject, Charles Chapman, London 8
2nd do, Alex. Jardine, Toronto 5

Professional or Amateur—Figure Subjects. (Originals.)

Best carving in stone, in relief, Robert Forsyth, Montreal 12
Best statue or group, in stone, Robert Forsyth, Toronto 15
2nd do, J. E. Pearen, Guelph 10

Photography.

Best ambrotypes, collection of, L. Eckerson, Hamilton 6
Best photograph portraits, collection of, in duplicate, one set coloured, Notman & Fraser, Toronto 10
2nd do, James Inglis, Montreal 6
Best photograph portraits, collection of, plain, Notman & Fraser, Toronto 8
2nd do, James Inglis, Montreal 5
Best photograph landscapes and views, collection of, R. W. Anderson, Toronto 8
Best photograph portrait, finished in oil, Notman and Fraser, Toronto 8
2nd do., J. W. Bridgeman, Toronto 5
Best photograph portrait, finished in Indian ink, Notman and Fraser, Toronto 6
2nd do., James Inglis, Montreal 4
Best photograph portrait, finished in water colours, Notman and Fraser, Toronto 6
2nd do., James Inglis, Montreal 4
Commended, Notman and Fraser, Toronto.

EXTRA ENTRIES—W. E. Wright, Niagara, a fruit piece, 1st prize, $4; J. W. Bridgeman, Toronto, photograph portrait on canvas, finished in oil, 1st prize, $5; V. Casci, Toronto, castings in plaster of Paris, 1st prize, $2; James Inglis, Montreal, combination photograph, 1st prize, $3; J. H. Noverre, Toronto, photographic studies from nature, 1st prize, $3; L. Eckerson, Hamilton, plain photograph portrait, 1st prize, $2; J. G. Parks, Montreal, two frames of stereoscopic views, 1st prize, $4; Miss Carty, Toronto, any subject in oil, 1st prize, $6; also highly commended: Miss A. Clarkson, Toronto, animals from life in oil, 1st prize, Miss Carty, Toronto, figure subject in oil, 1st prize, $6; Miss A. Clarkson, Toronto, still life in oil, 1st prize, $6.

CLASS 41—FINE ARTS—245 ENTRIES.

Professional List—(Originals.)

Judges—Rev. V. Clementi, North Douro, Henry Langley, Toronto; and Thos. M. Simons, Galt.

Water Colours.

Best, any subject, Daniel Fowler, Amherst Island $10
2nd do., Chas. S. Millard, Toronto 8
COMMENDED—Thos. M. Martin, Toronto.
Best animals from life, Daniel Fowler, Amherst Island 8
Best flowers, grouped or single, Daniel Fowler, Amherst Island 7
2nd do., Henry Martin, Toronto 5
Best figure subject, Chas J. Way, Montreal .. 8
2nd do., Daniel Fowler, Amherst Island .. 6
Best landscape, Canadian subject, Chas. S. Millard, Toronto 8
2nd do., Henry Martin, do 6
Best landscape or marine view, not Canadian subject, Chas. S. Millard, Toronto 8
2nd do., Daniel Fowler, Amherst Island 6
Best marine view, Canadian subject, Chas. S. Millard, Toronto 8
2nd do., Henry Sandham, Montreal 6
Best portrait, M. Mathews, Toronto 7
Thos M. Martin, Toronto ..... Commended
Best still life, Thos. M. Martin, do 7
2nd do., Jas. Griffiths, London 5

Pencils, Crayons, &c.

Best crayon, coloured, Daniel Fowler, Amherst Island 6
Best crayon, plain, 1st, J. C. Forbes, Toronto.. 6
2nd do, A Vogt, Montreal 4
Best crayon or pencil portrait, Daniel Fowler, Amherst Island 6
2nd do., T. M. Martin, Toronto 4
Best pen and ink sketch, Mrs. B. Walker, Toronto 6
2nd do., Henry Sandham, Montreal 4
Best pencil drawing, D. Fowler, Amherst Island 6
Best Sepia drawing, Chas S. Millard, Toronto. 6
2nd do., Henry Sandham, Montreal 4

Amateur List (Originals)—Water Colours.

Animals from life, Chas. Chapman, London.... $7
Best flowers, grouped or single, Miss A. Clarkson, Toronto 6
2nd do., Mrs Hornby, Toronto 4
Best figure subject, Mrs. Hornby, Toronto... 7
Best landscape or marine view, Canadian subject, Chas. Chapman, London 7
2nd do., Miss Mary Strickland, Oshawa 5

Pencils, Crayons, &c.

Pen and ink sketch, R. Lee, Toronto $5

Amateur List (Copies.)—Water Colours.

Best flowers, grouped or single, Miss C. Mountcastle, Goderich $5
2nd do., Miss Nancy Strickland, Oshawa 3
Figure subject, Miss C. Mountcastle, Goderich 5
Best landscape, Mrs. Hornby, Toronto 5
2nd do., Miss C. Mountcastle, Goderich 3
Best marine view, Mrs. Hornby, Toronto 5
2nd do., Miss C. Mountcastle, Goderich 3

Pencils, Crayons, &c.

Best crayon, coloured, Miss H. Thurtell, Guelph 4
2nd do., Miss H. Thurtell, Guelph 2
Best crayon, plain, Miss Lillie Switzer, Toronto township 4
2nd do., Miss Bray, Toronto 2
Commended, Miss A. Clarkson, Toronto, (2)..
Best crayon or pencil portrait, Miss Annie Clarke, Toronto 4
2nd do, Miss Risley, Toronto 2
Best pen and ink sketch, J. T. Rolph, Toronto 4
2nd do., Miss Nancy Strickland, Oshawa..... 2
Best pencil drawing, Mrs. M. Hargrave, Toronto 4
2nd do., Miss A. Clarke, Toronto 2
Best sepia, J. T. Rolph, do. 4
2nd do., Miss C. Mountcastle, Goderich 2

EXTRA.—Hurd, Leigh & Co., Toronto, enamelled, painted, and gilt china and earthenware, 1st prize, diploma and $10; Miss M. Murney, Belleville, cabinet painted on wood, 1st prize, $5; Mrs. Hornby, Toronto, "Summer Night," 1st prize, $4; do., miniature on ivory, 2nd, $2; do., group of seashells, 2nd prize, $2; Miss Bray, Toronto, coloured seal, water colour and pencil, 2nd prize, $2; Notman and Fraser, photographic composition picture, $3.

CLASS 42.—GROCERIES AND PROVISIONS—47 ENTRIES.

JUDGES—John Junkin, St. Catharines; E. A. McNaughton, Cobourg; and Henry Horton, Junior, Goderich.

Barley, Pearl, 25lbs, Robert King, Hamilton, $3
2nd do., Andrew Paul Beach 2
Barley, Pot, 25lbs, Robert King, Hamilton.. 3
2nd do., Robert Williamson, Ingersoll 2
Bottled fruits, an assortment, manufactured for sale, James Goodchild, Bradford.... 5
Bottled pickles, an assortment, manufactured for sale, G. F. Moore and Co, Toronto.... 6
Buckwheat flour, 25lbs., E. D. Tilson, Tilsonburg 3
2nd do., Robert King, Hamilton 2
Chickory, 20lbs, prepared, George Pears, Toronto 3
Indian corn meal, 25lbs., E. D. Tilson, Tilsonburg 3
2nd do., Robert King, Hamilton 2
Oatmeal 25lbs., Andrew Paul, Beach 3
Oatmeal 25lbs., Andrew Paul, Beach 2
Sauces for table use, an assortment, manufactured for sale, G. F. Moore and Co., Toronto 6
2nd do., David Davis, Lonth 4
Soap, one box of common, Benjamin Rigg, Stratford 4
Starch, 12lbs Corn, Edwardsburg Starch Co.. 2
Tobacco, 14lbs, Canadian manufacture, Joab Scales and Co., Toronto 5
2nd do, Alex. Hartlil, junr., and Co, Toronto 3
Vegetables, hermetically sealed, Grimsby Fruit Canning Company 3
Wheat flour, 50lbs., E. D. Tilson, Tilsonburg.. 7
2nd do., Andrew Paul, Beach 5

EXTRA ENTRIES — Commended:—George Pears, Toronto, assortment of spices and coffees. E H. Shorties, Thorold, meats and poultry. John Steel, Toronto, patent self-raising prepared flour, Highly Commended and Diploma:—W. W. Park and Co, Toronto, six samples of vinegar, prize $3; Edward Lawson, assortment of biscuits and confectionary manufacture, prize $5; Judd and Co., vegetable union yeast, $3; V. Casci, Toronto, two boxes of macaroni.

CLASS 43—LADIES' WORK—282 ENTRIES.

Braiding, Embroidery, Needlework, &c.

JUDGES—Mrs. James Young, Galt; Miss C. M. Stephens, Cobourg; and Mrs. Holmes, Brampton.

Bead work, C. W. Postlethwaite, Toronto $3
2nd do, Miss Sarah Strickland, Oshawa 2
3rd do, Miss Sarah Strickland, Oshawa 1
Braiding, Miss N. Strickland, Oshawa 3
2nd do, Miss Sarah Strickland, Oshawa 2
3rd do, Miss Barker, Markham 1
Crochet work, Miss Nancy Strickland, Oshawa. 3
2nd do, Mrs. Pollard, Bowmanville 2
3rd do, Miss Sarah strickland, Oshawa 1
Embroidery in muslin, Mrs. Macasy, Meadow Brook, Simcoe 3
2nd do, Miss Bidwill, Colborne 2
3rd do, Miss Sarah Strickland, Oshawa 1
Embroidery in cotton, Miss Nancy Strickland, Oshawa 3
2nd do, Mrs. Van Ingen, Woodstock 2
3rd do, Miss H. Bidwill, Colborne 1
Embroidery in silk, Miss J. N. Lemon, Maitland 3
2nd do, Miss S. Staunton, Toronto 2
3rd do, Miss Barker, Markham 1
Embroidery in worsted, Miss Isabella Symons, Toronto ..... 3.
2nd do, Miss M. A. Thorne, Guelph 2
Guipure work, Miss Bidwill, Colborne 3
2nd do, Miss E. Lee, Toronto 2
3rd do, Miss H. Bidwill, Colborne 1
Knitting, Miss Beith, Darlington 3
2nd do, Mrs. Mackay, Meadow Brook 2
3rd do, Miss Eliz. Choate, Ingersoll 1
Lace work, Miss H. Bidwill, Colborne 2
2nd do, Miss Bidwill, Colborne 1
3rd do, Miss A. Brunskill, Toronto 2
Miss E. White, Bedford, England, Bedfordfordshire tape ..... Highly Commended.
Machine sewing, family, Wm. C. Bell, Markham 3
Needle work, ornamental, Miss N. Strickland, Oshawa 3
2nd do, Miss F. A. Cullis, Cobourg 2
3rd do, Miss H. Lundy, Drummondville 1
Netting, fancy, Miss N. Strickland, Oshawa.. 2
2nd do, Miss J. Cullis, Cobourg 1
3rd do, Mrs. J. Harper, King 2
Plait for bonnets or hats, of Canadian straw, Miss Bidwill, Colborne 3
2nd do, Miss H. Bidwill, Colborne 2
3rd do, J. G. Paterson, Scarboro' 1
Quilt, silk, Mrs. Robert Wilson, Islington.... 3
2nd do, Miss J. Halliday, Streetsville 2
3rd do, Miss Maria Barton, Toronto 1
Quilt, patchwork, Mrs. J. a. Armstrong, Guelph 3
2nd do., Mrs. J. Harper, King 2
3rd do., Mrs. Markle, Harriston 1
Rag carpet, Miss Currie, Niagara 3
2nd do., Mrs. John Hare, Yorkville 2
3rd do., Mrs. Ellen O'Connor, Toronto 1
Rag mat, Mrs. John Laidlaw, Toronto 2
2nd do., Miss Sarah Strickland, Oshawa..... 1
3rd do, M. Fortec, Bowmanville 3
Shirt, gensleman's, Mrs. John Brock, Bowmanville 2
2nd do., Mrs. Mackay, Meadowbrook 1
3rd do., Miss M. J. Lacey, Cobourg 3
Tatting, Miss Lillie Beattie, Coborg 2
2nd do., Miss M. M. Parks, Trafalgar 1
3rd do, Miss H. Bidwell, Colborne 3

EXTRA ENTRIES.—Mrs J. McClellan, Bowmanville, fancy quilting, 1st prize $2; Mrs. A. Piddington, Toronto, case of wax dolls, dressed, 1st prize, $3; W. Symons, Toronto, Berlin wool, beadwork, and string of buttons, 1st prize, $2; Mrs. James Park, Oxford Centre, fancy quilt, 1st prize, $2; Mrs. Howarth, Toronto, map of the world in needle-work, 1st prize, $2; Miss Capron, Paris, pair of fancy pen-wipers, 2nd prize, $1; Mrs. Thos. Wylie, Caledon, Tuft Quilt, 2nd prize, $1 50; Miss Bondidier, Toronto, shoulder brace, 2nd prize, $1.

COMMENDED.—Geo Stranger, Nassagaweya, knitted quilt; Joshua Narish, do., knitted quilt; Miss M. Ramage, Richview, hexagonal cushion; Miss Mary Strickland, Oshawa, embroidery on net; Mrs. E. Lee, Toronto, leather work; card basket, &c; Wm. C. Bell, Markham, ladies' under-clothing; H. McCaw, Toronto, scarlet robe; Mrs. W. D. Bundy, Toronto, Honiton lace handkerchief lace, 11 months' work; Mrs. McBride, Toronto, assortment of millinery.

CLASS 44—LADIES' WORK—100 ENTRIES.

Flowers, Hair, Moss, Wax, and Worsted Work, &c

JUDGES—Miss Frankie Palmer, Thurlow; Miss Kate Miller, Galt; and Mrs. Wm. Cooke, Galt.

Best flowers, silver wire, Mrs. E. P. Denison, Weston $2
2nd do, Miss J. Armstrong, Toronto 1
3rd do, Mrs. Jas. Park, Oxford Centre 50
Best flowers, feather, Mrs. Jas. Park, Oxford Centre 2
2nd do, Mrs. E. Street, Toronto 1
Best gloves, 3 pairs, Mrs. Hinman, Haldimand 3
2nd do, Mrs. J. Harper, King 1
3rd do, Mrs. Jas. Park, Oxford Centre 50
Best hair work, Miss E. A. Cullis, Hamilton township 3
2nd do, Miss J. Armstrong, Toronto 2
Best mittens, 2 pairs, woollen, Mrs. Hinman, Haldimand 3
2nd do, Mrs. J. Grant, Puslinch 1
3rd do, Mrs. J. Harper, King 50
Best moss picture, Mrs. Kivas Tully, Toronto. 3
2nd do, Mrs. Band, Toronto 2
3rd do, Mrs. Carto, Toronto 1
Best moss work, Mrs. Jas. Park, Oxford Centre 1
Best shell work, Miss Mary Strickland, Oshawa 1
Best socks, 3 pairs woollen, Mrs. Jane Harper, King 2
2nd do, Mrs. G. Bennett, Cobourg 1
3rd do, Mrs. Hinman, Haldimand 50
Stockings, 3 pairs woollen, Mrs. G. Bennett, Cobourg 2
2nd do, Mrs. Jane Harper, King 1
3rd do, Mrs. H. M. Thomas, Brooklin 50
Wax flowers, Mrs. A. Dredge, Toronto 5
2nd do, Miss L. Warner, Brentwood 3
3rd do, Mrs. John Heyes, Toronto 1 50
Wax fruit, Miss Phemy McAvers, Hamilton Township 3
2nd do, Mrs John Heyes, Toronto 5
3rd do, Mrs. J. Park, Oxford Centre 3
1 50

Wax shells, a collection of, Miss A. Taylor, Scarboro 5
Worsted work, Mrs. W. J. Marsh, Charkburg, 2nd do, Miss M. McArthurs, Bowmanville..... 3
3rd do, Mrs. Hornby, Toronto 1
Extra prize, Mrs. Pavely, Toronto..... 2
do, do, Miss J. M. Lamon, Maitland.... 1
Worsted work, fancy for framing, Miss Ida A. Taylor, Toronto, diploma and..... 3
2nd do, Miss Sophia Lea, York Township..... 2
3rd do, Miss M. Henderson, Toronto..... 1
Worsted work, raised, Miss Annie Hill, Weston 3
2nd do, Mrs. E. P. Denison, Weston 2
3rd do, Wm. Tolton, Etamosa 1
Wreath, seed, Mrs. Amelia Carroll, Toronto.. 2
2nd do, Mrs E. P. Denison, Weston..... 1
3rd do, Miss J. Armstroag, Toronto 50

EXTRA ENTRIES—Miss A. Choate, Ingersoll, phantom bouquet, 1st prize, $1; Miss Nicholson, Toronto, fancy leather frame, 1st prize, $1; Mrs. J. Grant, Richmond Hill, small wax figure dressed in Turkish style, under glass shade, 1st prize, $2, Mrs. Hornby, Toronto, ornamental braided chair, 1st prize, $1, and card rack in sawed wood, 1st prize, $1; Mrs. James Fark, Oxford Centre, wreath of flowers, $2; Mrs. J. E. Smith, Pickering, chenele work, 1st prize, $2; F. Hirschfelder, Toronto, collection of stamps, 1st prize, $1; Miss F. Symons, Toronto, paper flowers, 1st prize, $1; Mrs. Carto, Toronto, braiding in hair, 1st prize, $2; Mrs. John Macnamara, York Township, velvet painting, 2nd prize, $1; Miss Warren, Toronto, crown of imitation coral, 2nd prize, $1.

CLASS 45.—MACHINERY, CASTINGS AND TOOLS—150 ENTRIES.

JUDGES—James Crossen, Cobourg; John Cowan, Oshawa; and Thomas Northey, Hamilton.

Blacksmith's bellows, Joseph Westman, Toronto $6
Card clothing, assortment of, E. Thurgeson, Ancaster 4
Castings for general machinery, Dickey, Neill & Co., Toronto..... 15
Cast wheel, spur or bevel, not less than 50 lbs. weight, Dickey, Neill and Co., Toronto..... 3
Castings for railways, railroad cars and locomotives, assortment of, John Gartshore, Toronto 26
2nd do, Dickey, Neill and Co., do..... 12
Cordwood sawing machine, steam or horse-power, B. Mitchell, Millbrook..... 18
2nd do, L. Rutherfield, Bradford..... 8
Edge tools, an assortment, Tuttle, Date and Rodden, St. Catherines..... 20
Engine, steam, stationary, five horse-power and upwards, in operation, C. H. Waterous, and Co., Brantford..... 25
Fire engine, hand power, Robert Dunn, Stratford..... 15
2nd do, Chas. Powell, Newtonbrook..... 10
Machines for planing and drilling metals, McKechnie and Bertram, Dundas..... 12
2nd do, do. do..... 8
Pump, in metal, Horsey and Breden, Kingston..... 5
2nd do, L. W. Scott, Toronto..... 3
Refrigerator, James McKelvey, St. Catherines. 5
Saws, an assortment, James Flint, St. Catherines 10
2nd do, James Robertson, Toronto..... 6
Saw mill, steam, in operation, C. H. Waterous & Co., Brantford..... 20
Sash and moulding machines, McKechnie & Bertram, Dundas..... 12
2nd do, Goldie, McCulloch and Co, Galt..... 8
Scales, platform, C. Wilson, Toronto..... 5
Scales, counter, C. Wilson, Toronto..... 3
Skates, an assortment of, Barney and Hervey, Springfield 5
2nd do Henry Ostram, Toronto .. 3
Spinning machine, Alexander McConnell, Caledon 4
2nd do John B. Lent, Hamilton township 3
Tools for working in metals, assortment of, McKechnie and Bertram, Dundas..... 12
2nd do Thos. Worswick, Guelph.. 7
Turning lathe, McKechnie and Bertram, Dundas 8
2nd do Littler, Maw and Co., Dundas 5

EXTRA ENTRIES—W. E. Beebe, Markham, pump augurs and runners, 1st prize, $4, sad millstone picks, 1st prize, $2; Paxton, Take and Co., Port Perry, three leffel double turbine water wheels, 1st prize, $8; E. Thurison, Ancaster, card clothing setting machine (English.) 2 prizes, 1st and 2nd, $5 and $4; Joseph Westman, Toronto, cooper's bellows, 1st prize, $2, and portable forge, 1st prize, $4; Lewis Bright, Brampton, Bright and Mallen's self-connecting car couple, 1st prize, $4; George Blake, Whitby, machine for cutting off round iron pipes, 1st prize, $2; Jas. Findlay, Toronto, Findlay's improved self-adjusting vice, 1st prize, $2; Thomas B. Van Everry, Goderich, portable steam engine for steaming food for cattle and horses, 1st prize, $4; McKechnie and Bertram, Dundas, planing and matching machine, 1st prize, $10, dimension planer, 1st prize, $5; pony planer, 1st prize, $5, car mortising machine, 1st prize, $8, power mortising machine, 1st prize, $6, wood shaping machine, 1st prize, $3, and car wheel borer and a tenoneing machine, 1st prize, $10; Stratton and Walton, Toronto, mill picks, 1st prize, $2; C. H. Waterous and Co., Brantford, lath machine, 1st prize, $5, and lath bonitor, 1st prize, $5; Goldie, Mc Culloch and Co., Galt, tennoning machine, 1st prize, $5, circular re-saw machine, 1st prize, $5, finisher carding machine cloth brusher, 1st prize, cloth shear, 1st prize, wool picker, 1st prize, measuring and winding machine, for cloth, 1st prize, hand waste picker, 1st prize, water wheel governor, 1st prize pair millstones, 1st prize, and proof staff, 1st prize, for the whole, $50 and diploma; Jones and Co., Markham, 5 steel amalgam belts, 1st prize, $6; C. Wilson, Toronto, butcher's scales, 1st prize, $2; Robert Emery, Toronto, eavelrough press, 1st prize, $4; C. T. Palsgrave, Montreal, type casting machine, operated by a workman, 1st prize, $5; J. O. Parker and Bros., Toronto, assortment of machines for the manufacture of soda water, 1st prize $3; H. T. Smith, steam pump for manufacturing soda water, 1st prize. $5; French cottage shop fount for soda water, 1st prize, $4, and an enamelled cylinder for containing soda water, 1st prize $1; Dickey, Neil and Co Toronto, stationary steam engines not in operation, 1st prize, circular saw rig, friction gear, friction set, works not in operation, 1st prize; log cutting machine, 1st prize, and double edging machine, 1st prize, for the whole diploma and $30; Hiram Kimball, Toronto, low water indicator, $2; A. F. Whaley, Markham, iron manipulator, 1st prize, $1; Sweet, Barnes and Co., Syracuse, N. Y., champion drill for drilling iron, 1st prize; E Thurison, Ancaster, new clothing setting machine (American,) 2nd prize: C. H. Waterous and Co., Brantford, double edger, 2nd prize, $4; Goldie, McCulloch and Co., Galt, combined moulding and matching machine, 2nd prize, $3; Littler, Maw and Co., Dundas, wood shaping machine, 2nd prize, $10; H. T. Smith, Toronto, square marble fount for soda water, 2nd prize, $2. Commended—John Shaw, Whitby, Shaw's improved washing machine; J. B. Johnson, Toronto, working model of steamboat; Jas. McKelvey, St. Catharines, a cream still, or portable cream gatherer, $5; Jonathan Downing, Clarke, family clothes mangle. $3; Sweet Barnes & Co., syracuse, N. Y., one champion drill for drilling iron, $10

CLASS 46—MACHINES, SEWING AND KNITTING—51 ENTRIES.

JUDGES—John Fensom, Toronto; M. C. Lutz, Galt, and Sanoorn Worthen, Guelph.

Best knitting machine, family, Lamb's Knitting Machine Co., U.S..... $7
2nd do, Hinkley Knitting Machine Co., New York 5
Best sewing machine, manufacturing, C. W. Williams and Co, Montreal 7
2nd do, L. C. Meeden, Toronto 5
Best sewing machine, family, Wilson, Bowman and Co., Hamilton..... 7
2nd do, Guelph Sewing Machine Co 5
Best sewing machine, button-hole, Guelph Sewing Machine Co 8
2nd do, Wheeler and Wilson, New York..... 4
Best sewing machine, embroidery, Wheeler and Wilson, New York..... 6
2nd do, Guelph Sewing Machine Co 4
Best sewing machine, single thread, Guelph Sewing Machine Co 5
2nd do, G. W. Gates and Co, Toronto..... 3

EXTRA ENTRIES—C. G. Hampton, Hamilton, a fluting machine, 1st prize, $3; A. M. Forster, Hamilton, boiler purger and vacuum lubricators, 1st prize $3; G. W. Gates, Toronto, hand-sewing machine, double thread, 1st prize, $5; M. Hutchinson, Toronto, hand-sewing machine, 2nd prize, $3.

NOTE BY THE JUDGES.—The Judges would especially recommend to the Association that sewing machines should be classified in more classes; in doing so the Judges could do better justice to the manufacturer and purchaser. We would recommend the following division or classification:—

1. Class, or fine work.
2. " " Coarse work.
3. " " Coarse and flee work.
4. " " Light leather work.
5. " " Heavy leather work.
6. " " Improved sewing machine fixtures.

CLASS 47—METAL WORK (MISCELLANEOUS) INCLUDING STOVES—230 ENTRIES

JUDGES—Peter Moran, Prescott; Wm. Buck, Brantford: and J. N. Tarbox, Hamilton.

Coppersmiths' work, an assortment, Beard Bros. & Co., Toronto ..... $ 8
2nd do. Copp Bros., Hamilton..... 5
Engineers' brass work, an assortment, David S. Keith, Toronto..... 8
2nd do. James Morrison, Toronto..... 5
Files, collection of cast steel, W. L. Kennin & Co., Montreal..... 3
Fire-proof office safe, J. & J. Taylor, Toronto, diploma and..... 8
Gas fixtures, an assortment, David S. Keith, Toronto 7
2nd do., George Harding, Toronto..... 4
Goldsmiths' work, J. G. Joseph & Co, Toronto. 6
Gold and silver leaf, C. H. Hubbard, Toronto.. 4
Iron work from the hammer, ornamental, James Berry, Toronto..... 4
Plumbers' work, an assortment, George Harding, Toronto..... 8
2nd do. James Morrison, Toronto..... 5
sheet brass work, an assortment, John Boxall, Toronto..... 8
Silversmiths' work, J. G. Joseph & Co, Toronto. 6
Tinsmiths' work, an assortment, John Boxall, Toronto..... 6
Tinsmiths' lacquered work, an assortment, N. L. Piper and Son, Toronto..... 6
Wire work, an assortment, Wm. H. Rice, Toronto..... 6
Cooking stove for wood, Copp Brothers, Hamilton..... 6
2nd do., Beard Brothers and Co., Toronto..... 4
Cooking stove for coal, Copp Brothers, Hamilton..... 6
2nd do., Beard Brothers and Co., Toronto..... 4
Furniture for Cooking stove, one set, Beard Brothers and Co., Toronto..... 5
2nd do., Copp Brothers, Hamilton..... 3
Hall Stove, for wood, James Moore, Brantford 5
2nd do., Copp Brothers, Hamilton..... 3
tall Stove, for coal, Copp Brothers, Hamilton. 5
2nd do., Beard Brothers and Co., Toronto.... 3
Parlour stove, for wood, Beard Bros. & Co., Toronto..... 5
2nd do., Copp Bros., Hamilton..... 3
Parlour stove, for coal, Beard Bros., & Co., Toronto..... 5
2nd do., Copp Bros., Hamilton..... 3
Parlour grate, Robert Forsyth, Toronto, Diploma and..... 5

EXTRAS—First prizes were awarded to the following:—Copp Bros., Hamilton, vice, 12 sad irons, and agricultural furnace, $4; John Boxall, Toronto, 2 toll lamps, improved archimedean ventilator, assortment silver-plated railroad lanterns, assortment brass railroad lanterns, assortment tin railroad lanterns, assortment railroad tail lamps, assortment railroad gauge lamps, assortment railroad switch lamps, 2 improved carriage lamps and assortment silver-plated reflectors, for the whole, $15; W. Millichamp, Toronto, druggists' and jewellers' show cases, assortment of jewellers' trays and sample of silver-plating, for the whole, $11; John Trott, Oakville, improved drum-heater, improved patent teapot and improved patent adjustable stove-pipe, for the whole, $5; W. E. Munger, Toronto, assortment of japanned goods and Munger's improved fire-proof housemaid's box, $6; Jas Merrison, Toronto, cabinet brass work, steam indicator and hydraulic test pump (brass); for the whole, diploma and $15; James Robertson, Toronto, lead shot, $1; N. L. Piper & Son, Toronto, 4 tea canisters (Chinese painting), $1; Dickey, Neil & Co., Toronto, general machinery forgings, $4; B. B. Deacon, Montreal, Deacon's patent coal safe, etc., $5; A. W. Russell, Toronto, collection of gold and silver watches and chronometers (marine and pocket), diploma: Fred Oakley, bolts, nuts and washers, $3; George Harding, Toronto, fountain for lawn or conservatory, improved soda water fountain, iron trap for asylums and prisons, aquaria for conservatories, iron screen with marble slab for heating coils, iron pipe boiler for heating purposes, iron telescope force and lift pumps, for the whole, $18; David S. Keith, ornamental brass counter rail, $5; Parson Bros. Toronto, assortment of kerosene fixtures, $5, one hotel stove, $8; Copp Bros., Hamilton, one parlour cooking stove for coal, $4; W. G. Littleford, Toronto, hair work for jewellery, $2; W. L. Kimmond & Co., Montreal, assortment of re-cut files, $2; George Stapley, Jefferson, N. Y., iron-clad factory milk can, iron-clad factory milk pails, $5; Montreal Rolling Mills, assortment of lead pipes, $2.

The following received second prizes:—James Robertson, Toronto, assortment of lead pipe; David S. Keith, Toronto, steam and vacuum gauges; George Harding, Toronto, iron pipe boilers for heating pumps; Montreal Rolling Mills, shot, $1; John Ritchie, Toronto, sample of counter rail, $3; John Collins, Toronto, assortment of steam pressure and vacuum gauges, $3; Copp Bros., Hamilton, agricultural furnace, $7; Wm. Aichin, Paris, a portable heater, $5; Hiram Piper, Toronto, 2 coal hods, $2; Thos. Richards, Hamilton, elbow and brush for cleaning stove pipes, $3; N. L. Piper, Toronto, 2 ventilators, $3; Jas. Robertson, To onto, assortment lead pipe, 2nd prize, $2.

A diploma was awarded to James Morrison, Toronto, for steam guages.

CLASS 48—MUSICAL INSTRUMENTS—37 ENTRIES.

JUDGES—L. N. Soper, St. Catharines; Thos. W. White, Hamilton, and G. M. Scribner, Chatham.

Case, for or on any kind of instrument, best made and finished, R. S. Williams & Co., Toronto $8
2nd do., W. Bell & Co, Guelph..... 5
Harmonium, McLeod, Wood & Co., Guelph.. 12
2nd do., W. Bell & Co., Guelph, equal..... 12
Melodeon, W. Bell & Co., Guelph 6
2nd do., R. S. Williams & Co., Toronto..... 4
Organ, cabinet or parlour, R. S. Williams & Co., Toronto..... 12
2nd do, W. Bell & Co., Guelph..... 8
Best piano, square, Heintzman & Co., Toronto..... diploma and 15
Best piano, cottage, Heintzman & Co., Toronto..... 10

Best piano of any kind (instruments awarded prizes in other sections allowed to compete), Heintzman & Co., Toronto..... 15
2nd do, Joseph F. Rainer, Whitby..... 8

EXTRA ENTRIES.—The following were awarded first prizes:—McLeod, Wood & Co., Guelph, reed (hall) organ, $8; Leonard Allen, Garafraxa, one bass and one snair drum, $4; R. S. Williams & Co., Toronto, melodeon and organ reeds and keys, $2; Wm. McLoughlin, Toronto, polishing or turpentine varniah, and graining in rosewood on pianofortes, $3.

CLASS 49—NATURAL HISTORY—28 ENTRIES.

JUDGES—Thos. McIlwraith, Hamilton; Dr. R. Mylene, Berlin; W. Saunders, London; and Jno. Beatty, M. D.

Best birds, collection of native, stuffed, with common and technical names attached, and classified so as to shew those injurious and those benaficial to agriculture and horticulture, S. Herring, Toronto $12
2nd do, J. Sands, Toronto 8
Plants, collection of native, arranged in their natural families, and named, John Macoun, Belleville..... 10
2nd do, Miss Jane Choate, Ingersoll 6
Saml. Wilmot, Newcastle, specimens of preserved and living fish. .....Highly Commended
John Macoun, Belleville, set of Canadian furs, named and classified.....Commended

NOTE BY THE JUDGES.—After a careful examination of Mr. Wilmot's specimens of Salmon, White Fish and Trout, illustrating in a very interesting manner the production and growth of these fish, we regard his display as well worthy of an extra prize and diploma.

CLASS 50—PAPER, PRINTING, PENMANSHIP, BOOK-BINDING, AND TYPE—56 ENTRIES.

JUDGES—D. W. Bixby, St. Catharines; George Tye, Brampton; and Daniel McGregor, Seaforth.

Best book-binding (blank book), assortment of, Brown Bros., Toronto..... $5
2nd do., Wm. Warwick, Toronto..... 3
Best book-binding (letter-press), assortment of, Brown Bros., Toronto..... 5
2nd do., A. Dredge & Co., Toronto..... 3
Best letter-press printing (plain), GLOBE Printing Company, Toronto..... 5
Best letter-press printing (ornamental), GLOBE Printing Company, Toronto..... 5
Best letter press printing—Posters, plain and ornamental, Globe Printing Comp'y, Toronto 5
Best paper-hangings (Canadian paper), one dozen rolls, assorted, M. Staunton, Toronto 6
Best penmanship, business hand, without flourishes, Odell and Trout, Toronto..... 4
2nd do., E. G. Conklen, Hamilton..... 2
Best penmanship, ornamental (not pen and ink pictures), Odell and Trout, Toronto..... 4
2nd do., E. G. Conklen, Hamilton..... 2
Best pocket-books, wallets, etc., an assortment, Brown Bros., Toronto..... 5

EXTRA ENTRIES—Wm. Downie, Hamilton, sand paper, emery paper and emery cloth, 1st prizes, $3; C. T. Palsgrave, Montreal, set of type cases and cabinet of cases, one set of labour-saving brass rule and metal furniture, 1st prizes, for the whole, $3; Brown Bros., Toronto, embossed cloth cases, &c., 1st prize, $1; Mitchell and McKroy, Guelph, quarter thousand boxes of envelopes, 1st prize, $2; Mitchell & McKroy, Guelph, one case of assorted window paper, $3; I. F. Flanagin, Paris, Eastman'e penman's assistant, &c., $3.

CLASS 51—SADDLE, ENGINE HOSE, TRUNKMAKERS' WORK, LEATHER, &C—90 ENTRIES.

JUDGES—Hugh Cant, Galt; Duncan McKay, Brantford; and W. Edwards, Toronto.

Saddlery, &c.

Collars, an assortment, Robert Nicolls, Toronto..... $5
2nd do, Thos. Stanton, Toronto..... 3
Engine, hose and joints, 2½ inches diameter, 50 ft. of copper rivetted, J. C. McLaren, Montreal..... 8
Harness, set of double carriage, Philip Young, New Hamburg..... 6
Harness, set of single carriage, Philip Young, New Hamburg, and Gardner and McKay, Brantford (equal), each..... 7
Harness, set of team, Gardner & McKay, Brantford 6
2nd do. H. McCrorey, Fergus..... 4
Leather machine belting, an assortment, J. C. McLaren, Montreal..... 8
2nd do, Whalley and Woods, Montreal..... 6
Saddle, lady's full quilted, Thos. Thompson, Toronto..... 8
Saddle, lady's quilted safe, Lugadin and Barnett, Toronto .....Diploma and 6
2nd do, J. S. Thompson, Toronto..... 4
Saddle, gentleman's plain shaftoe, Lugadin and Barnett, Toronto..... Diploma and 6
2nd do, Thos. Thompson, Toronto..... 4
Trunks, an assortment, Lugadin and Barnett, Toronto..... 8
Whips, an assortment, H. A. King, Hamilton . 5

Saddle and Harness Stock.

Check for horse collar, one piece, Donald Clark, Morristoe..... 4
2nd do, Jas Moore, Etobicoke..... 4
Belt Leather, 20 lbs., James Wilson, Mitchell 4
2nd do, do, J. C. McLaren, Montreal..... 3
Peter King, Fergus.....Commended
Brown strap and bridle, leather, one side of each, Wm Kerr, Fullarton..... 4
2nd do, Jas. Wilson, Mitchell..... 3
Carriage cover, two skins (whole) Peter King, Fergus..... 4
Deerskins, three dressed, H. Ferdinand, Waterloo 3
Harness leather, two sides, Peter King, Fergus 4
2nd do, Bowman and Zinkan, St. Jacob's..... 3
Hog skins for saddles, three, James Wilson, Mitchell..... 4
Horse blankets, two pairs, Cornwall Manufacturing Co..... 5
2nd do, D. S. McFarlane, Pickering..... 3
Kersey, for horse clothing, one piece, Cornwall Manufacturing Co..... 5
2nd do, John Moore, Etobicoke 3
Skirting for saddles, two sides, James Wilson, Mitchell..... 4
2nd do, Wm. Kerr, Fullarton..... 3

EXTRA ENTRIES—The following were awarded 1st prizes:—James Wilson, Mitchell, 1 side buff bridle leather, $3, and one side card do, $3; Lyaden & Barnett, Toronto, steeple-chase saddle, $3; J. C McLaren, Montreal, patent tanned lace (Canadian), $3; Robert Nicolls, Toronto, 2 suits of horse clothing, $3; Wm. Kerr, Fullarton, 1 side stirrup leather, 1 side rim do, and 1 side trunk do, $3. The following received 2nd prizes—Jas. Wilson, Mitchell, 1 side of loop leather, $2, and 1 side of collar leather, $2; Jas. McLaren, Montreal, hose leather, $2; Thos. Thompson, Toronto, gentleman's light steeple-chase saddle, $2.

CLASS 52.—SHOE AND BOOTMAKERS' WORK, LEATHER, &C—82 ENTRIES.

JUDGES—John McMechan, London; John Tyner, Toronto, and J. H. Thomas, Berlin.

Shoemakers' Tools and Stock

Best boot and shoemakers' lasts and trees, an assortment, Selway and Iredale, Toronto.. $3
Best calf skins, two, Bowman and Zinkan, St. Jacobs..... 3
2nd do, Peter King, Fergus..... 2
Best calf skins, two, grained, Bowman and Zinkan, St. Jacobs..... 3
2nd do., Peter King, Fergus..... 2
Best calf skins, two, morocco, Bowman and Zinkan, St. Jacobs..... 3
2nd do., Peter King, Fergus..... 2
Best cordovan, two skins, Bowman and Zinkan, St. Jacobs..... 3
2nd do., Peter King, Fergus..... 2
Best cow, buffed, two skins, R. Camirant, Montreal..... 3
2nd do., Bowman and Zinkan, St. Jacobs..... 2
Best cow, pebbled, two skins, Bowman and Zinkan, St. Jacobs..... 3
2nd do, Peter King, Fergus..... 2
Best splits, two skins, Bowman and Zinkan, St. Jacobs..... 3
2nd do., Peter King, Fergus..... 2
Best dog skins, two dressed, Bowman and Zinkan, St. Jacobs..... 3
2nd do, Peter King, Fergus..... 2
Best kip skins, two sides, Bowman and Zinkan, St. Jacobs..... 3
2nd do., Peter King, Fergus..... 2
Best kip skins, two, grained, Bowman and Zinkan, St. Jacobs..... 3
2nd do, Peter King, Fergus..... 2
Best leather, kinds not otherwise described, assortment of, Peter King, Fergus..... 4
2nd do., R. Camirant, Montreal..... 3
Best linings, six skins, H. Ferdinand, Waterloo 3
Best sole leather, two sides, Macklem and Kirkpatrick, Chippewa..... 4
Best upper leather, two sides, Wm. Kerr, Fullarton..... 3
2nd do, Bowman and Zinkan, St. Jacobs..... 2
Best upper leather, grained, two sides, Peter King, Fergus..... 3
2nd do, John Henver and Sons, Guelph..... 2

EXTRA ENTRIES—Isaac Myers, Hamilton, Myer's patent combined boot and shoe stretcher, 1st prize, $4.

CLASS 53—WOOLLEN, FLAX AND COTTON GOODS, FURS AND WEARING APPAREL—163 ENTRIES.

JUDGES—W. D. Michael, Oshawa; F. Guggisberg, Galt; Andrew McNaughton, Newcastle; and Nelson Haight, St. Catharines.

Best bags, 1 dozen, cotton, Percy Cotton Mills, Hastings..... 4
Best blankets, woollen, 1 pair, Cornwall Manufacturing Company 6
R. D. Foley, Darlington, and Miss Beith, do, highly commended.
Alex. McLaren, Caledon, commended.
Best carpet, woollen, one piece, Mrs. J. McClellan, Bowmanville..... 8
2nd do, Thomas A. Allan, Grimsby..... 5
Best carpet, woollen stair, one piece, Mrs. J. McClellan, Bowmanville..... 7
Best carpet, rag, one piece, Mrs. John Marshall, Palermo..... 5
2nd do, L. S. Lundy, Drummondville..... 3
Best cassimere cloth, from merino wool, one piece, Paton Manufacturing Company, Sherbrooke 7
2nd do, Barber Brothers, Streetsville 4
Best cloth, fulled, one piece, Barber Brothers, Streetsville 7
2nd do, Paton Manufacturing Co., Sherbrooke 4
3rd do, special, Mrs Jane Harper, King..... 3
Best counterpanes, two, A. Ploethners, Preston 5
2nd do, James Brown, North Dumfries..... 3
Mrs. J. Grant, Pushinch, and Miss M. Dewyard, Toronto, were highly commended.
Best cordage, assortment of, Edward Law, Kingston 7
Best drawers, fancy made, woollen, six pairs, Armstrong, McCrae & Co., Guelph..... 6
Best flannel, factory made, one piece, Adam Lucas, Sherbrooke..... 3
2nd do. S. T. Willett, Chambly 3
Best flannel, not factory made, one piece, Donald Clark, Morriston 5
2nd do, Alex. McLaren, Caledon..... 3
Best flannel, scarlet, one piece, S. T. Willett, Chambly 5
2nd do, Adam Lucas, Sherbrooke 3
Best furs, gentleman's set of, E. W. Cowan, Montreal 5
Best furs, lady's set of, E. W. Cowan, Montreal 6
Best fur sleigh robes—not less than three kinds, an assortment, R. W. Cowan, Montreal 15
2nd do, H. Ferdinand, Waterloo..... 8
Best gloves and mits of any leather, an assortment, H. Ferdidand, Waterloo..... 5
Best Oxford grey cloth, one piece, Paton Manufacturing Company, Sherbrooke 6
2nd do. Barber Brothers, Streetsville 3
Best satinet, black, one piece, Barber Brothers, Streetsville 6
Best satinet, mixed, one piece, Barber Brothers, Streetsville..... 5
2nd do, John Richardson, North Pelham..... 3
Best shawls, home made, Mrs. Hinman, Haldimand 4
2nd do, T. A. Allen, Grimsby..... 3
Thomas Thompson, Williamsburg, was commended
Best sheepskin mats, dressed and coloured, an assortment, R. Camirant, Montreal 6
2nd do, H. Ferdinand, Waterloo..... 4
Best shirts, factory made, three of each, woollen and Angola, Armstrong, McCrae and Co, Guelph..... 5
Best stockings and socks, factory made, woollen, three pairs of each, Armstrong, McCrae and Co, Guelph 4
Best tweed, winter, one piece, Paton Manufacturing Company, Sherbrooke..... 6
2nd do, Barber Brothers, Streetsville 4
Best tweed, summer, one piece, Paton Manufacturing Company, Sherbrooke 6
2nd do, Barber Brothers, Streetsville..... 4
Best winey, checked, one piece, John Richardson, N. Pelham..... 5
Best woollen cloths, tweeds, etc, an assortment, Paton Manufacturing Company, Sherbrooke 16
2nd do, Barber Brothers, Streetsville 6
Best woollen shawls, stockings, drawers, shirts and mits, an assortment, Armstrong, McCrae and Co., Guelph 10
2nd do, Donald Clark, Morriston..... 6
Best yarn, white and dyed, 1 lb of each, Armstrong, McCrae & Co., Guelph..... 3
2nd do, Arch. Frank, Caledon..... 2
Best yare, fleecy woollen, for knitting, 1 lb, John Richardson, N. Pelham 3
2nd do, Armstrong, McCrae and Co, Guelph.. 2
Best yarn, cotton, two pounds, Percy Cotton Mills, Hastings..... 3

EXTRAS—D. S. McFarlane, Pickering, home made plaid, $1; Alex. McLaren, Caledon, flannel shirt, $1; S. T. Willet, Chambly, piece of tweed flannel, $3; Edward Law, Kingston, sash cord, $1.

OMISSION.—Mr. Charles Boeck, of Toronto, received a diploma for an assortment of brushes at the Exhibition, as well as a first prize.

NOTE BY THE JUDGES.—The Judges recommend that in future the coloured fancy flannels be entered separate from white and plain colours.

The custom of renting rams for a year instead of selling them is quite common among English sheep breeders. Recently one gentleman let 120, at an average price not far from $50 gold each. The highest price was about $200 gold. These were Lincoln sheep; at another letting one ram was let for about $250 gold.

Miscellaneous.

The Grain Exchange of the World.

No two syllables are more familiar in every grain-growing country of the four continents than Mark Lane. They head a column of all British newspapers; are quoted in French, German, Spanish and American journals. The corn exchange takes the name of the street in which it stands. It is the only market in London for corn, grain and seed. England is always a buyer of grain. The 77,000,000 acres in the United Kingdom never produce a sufficiency of cereals in the most abundant harvest to fill the mouths of the 32,000,000 people through the year. Hence the price that England pays for grain, settled tri-weekly at the corn exchange in Mark Lane, rules the prices not only at home, but slightly decreasing in the ratio of distance, all over the world. Mark Lane stands in the heart of mercantile London. It is close upon the Thames. On every side are vast warehouses, crammed with the freights borne in by every tide. Pendulous bales swing from fifty feet aloft. Casks plunge and duck headlong into collars. The street is jammed with loaded wains. The wayfarer dives beneath nosebags, and rubs shoulders with dripping tires of broad-wheeled wagons.

The Corn Exchange stands in the centre of Mark Lane, on the eastern side. It was built soon after 1747, when the present system of factorage commenced. In an open Doric colonnade, sheltered, well lighted, roofed in from the weather, and covered by a large and handsome dome, stand before stalls filled with samples of every variety of grain and pulse productive of food for man and beast, factors and millers, lightermen and granary-keepers, bluff country gentlemen and Kentish farmers. There are more than seven hundred independent places of business. The counters are polished by the friction of grain. They are covered with open canvas bags, containing samples. All responsibility rests with the principals; who, if they do not deliver goods according to the sample, must abide the disagreeable consequences. Grain lies in heaps everywhere. It is under the stalls, on the seats, over the counters, and ankle deep covering the floor. The ever moving crowd are grinding it under foot. A hundred hands are taking samples from the bags, rubbing and comparing and "palming" them, and then throwing them upon the floor. "Why is not the grain returned to the bag?" was the question put to a friend. "That would never answer," he replied. "Suppose I were buying oats. I take a sample; try its dampness or dryness in my hand; shift it to my other, move it about, and examine its colour, smell, and taste. It has lost its dryness or dampness, is no longer a sample; and to return it to the bag would be to deceive the next comer. Of course I throw it on the floor. It is somebody's perquisite."—*The Independent.*

The Wool Product of the World.

We have before us an enquiry from a patron of the *Western Rural*, as to which is the heaviest wool-producing country in the world, and will answer by giving the following estimates of German statisticians, presuming them relatively correct:—

	Pounds.
Great Britain	260,000,000
Germany	200,000,000
France	123,000,000
Spain, Italy and Portugal	119,000,000
European Russia	125,000,000
Australia, South America, and South Africa	157,000,000
British North America	12,000,000
United States	95,000,000
North Africa	49,000,000
Asia, very general estimate	470,000,000

The aggregate production of the wools of the globe, by these estimates, is 1,610,000,000, or a pound and a quarter to each inhabitant, reckoned at 1,285,000,000 people.—*Ex.*

Two men in Boston have invented a device by which a horse is unhitched at once from a vehicle of any sort. A touch of the foot upon a treadle near the dash board releases the animal with a certainty, and applies a break which stops the carriage within a rod

The California State Board of Agriculture have awarded State premiums to Mrs. E. M. Weston, Sacramento, for 626,000 silk cocoons; A. Packard, of Santa Barbara, for 150,000 cocoons: H. G. Ballow, of Yolo county, for 100,000 cocoons; and to several parties for mulberry plantations.

As an evidence of the extent of the cattle trade around Elora, the *Times* states that during the past week there was shipped from the Elora station nineteen car loads of cattle, each car would contain on an average twenty-one head, or a total of say four hundred head. In addition to this, several droves were driven to Guelph.

EXTRACTING WHEEL GREASE, ETC.—I have cleaned wheel grease from a nice silk thus: Laying the silk on a clean sheet folded to eight thicknesses, I rubbed the greased part with a soft cloth dipped in lard, moving the silk to a new spot frequently. After a time the wheel grease all went through, leaving only clean lard. This was then cleaned out in the same way, by rubbing it with some nice soap and alcohol, using a clean cloth to rub with, and frequently changing to a new spot on the under-laying sheet. The silk was then laid on a clean cloth, and rubbed dry with a soft cloth. A friend cleaned white Canton crape in this way, and you cannot find a place where it was greased.

DENOMINATIONAL OXEN.—A gentleman travelling in Texas met on the road a waggon drawn by four oxen, driven by a countryman, who, in addition to the skilful flourish and crack of whip, was vociferously encouraging his horned horses after this fashion:—"Haw, Presbyterian! Gee, Baptist! Ahoh, Episcopalian! Geet up, Methodist!" The traveller stopped the driver, remarking to him that he had strange names for his oxen; he would like to know why he thus called them. Said the driver: "I call this ox Presbyterian, because he is true blue and never fails, pulls through difficulties, and holds out to the end; besides, he knows more than the rest. I call this Baptist, because he is always after water, and seems as though he'd never drink enough; then, again, he won't eat with the others. I call this Episcopalian, because he has a mighty way of holding his head up, and if the yoke gets a little tight he tries to kick clear of the traces. I call this ox Methodist, because he puffs and blows and bellows as he goes along, and you'd think he was pulling all creation, but he don't pull a pound unless you continually stir him up."

Advertisements.

FREE COPIES TO JANUARY 1, 1871.
To New Subscribers.

The Country Gentleman
FOR 1871.

"The Best of all Agricultural Weeklies in America," says *The Horticulturist, New York.*

"It has No Equal in the Entire Field of American Agricultural Journalism."—*Maine Farmer.*

THE CULTIVATOR & COUNTRY GENTLEMAN has been much enlarged and improved during the past year, and continues to maintain its former rank as the STANDARD JOURNAL OF AMERICAN AGRICULTURE. Including all the departments connected with the Cultivation of the Soil for profit or pleasure, it is its aim to promote the best interests of its readers,—to protect them from fraud and falsehood,—to provide them with the information most essential in their calling,—and, leaving to others the task of furnishing the transitory entertainment of the hour, to present a periodical of frequent issue, always fresh and seasonable, and *especially adapted* in every department to the practical wants of the FARMER and his FAMILY.

In Extent of Correspondence—
In Practical Suggestions—
In Agricultural News—

it is believed to be WITHOUT AN EQUAL, and it should be placed in the hands of every Farmer, Fruit-grower, and Breeder in the country. For them, as well as for their wives and children, the interest and value of its contents have never before been so great as now.

TERMS.—The terms are lower than those of *any other paper* of similar standing: One copy, $2.50 per year; Four copies, $9; Eight copies, $16.

☞ *All* NEW *Subscribers to* THE CULTIVATOR & COUNTRY GENTLEMAN *for* 1871, *paying in advance previous to the close of* 1870, WILL RECEIVE THE PAPER WEEKLY, *from receipt of remittance to January* 1*st*, 1871, WITHOUT CHARGE.

☞ *Any person wishing to try the paper before subscribing will be supplied with copies regularly from date of application to Jan.* 1*st*, 1871, *for the nominal price of* 25 *cents, or* TEN COPIES, *if applied for at same time, for* ONE DOLLAR.

SINGLE NUMBERS AS SPECIMENS, FREE!
Address
LUTHER TUCKER & SON, Publishers,
ALBANY, N.Y.
2-11-1t.

A Trial Trip. 3 Months for 30 Cents.

Do you love **Fruits, Flowers, Gardening, Designs of Cottages, Ornamental Trees, Shrubs, and Embellishment of Home Grounds?** Take a trial trip for three months or a year with

THE HORTICULTURIST.

Every one who has a Garden should take it.
" *Lady who loves Flowers* " "
" *Lover of Rural Architecture should take it.*
" *Fruit Grower* " "

It is the oldest, ablest and best illustrated Journal of Horticulture, Gardening and Rural Taste in America.

☞ Send Stamp for illustrated Prospectus and Premium List of Valuable Books, Lilies, Gladiolus, &c.

SPECIMEN COPIES ONLY 10 CENTS.

HENRY T. WILLIAMS, Proprietor,
5 Beekman St., New York.

☞ GET UP A CLUB. PRICES REDUCED. ☜
2 *Copies*, $3.50. 3 *Copies*, $5. 5 *Copies*, $7.50

PREMIUMS.

To every Trial Trip Subscriber a choice Engraving—"Gathering Fruits and Flowers."
For a club of Five Trial Trip Subscribers a Fine Japan Lily.
For a New Subscriber, or a Club, a choice of a valuable Lily, Grapevine or Book. SEE PREMIUM LIST.
v2-11-2t

BREAKFAST.

EPPS'S COCOA.

GRATEFUL AND COMFORTING.

THE very agreeable character of this preparation has rendered it a general favourite. The *Civil Service Gazette* remarks:—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills." Made simply with boiling water or milk. Sold only in tin-lined packets, labelled—

JAMES EPPS & Co.,
Homœopathic Chemists, London.
v2-11-12t

AUCTION SALE
OF
CHOICE SHORT-HORNS

THE undersigned has received instructions from LT. COL. TAYLOR, to offer for sale at Springwood, Township of Westminster, one mile south of the Great Western Railway Station, LONDON, on TUESDAY, 22nd NOVEMBER, at 1 o'clock, the following

PURE DURHAM CATTLE:—

1 yearling Bull, "PROUD DUKE," 8879, bred by J. O. Sheldon, Esq., Geneva, U.S.
6 Pure Bred Cows, in calf to "Proud Duke."
3 Pure Bred Heifers.

TERMS OF SALE—All sums under $50 cash; over that amount 12 months' credit on approved joint notes, without interest. Discount 8 per cent. per annum.

Lunch at 12 o'clock. Sale to commence at 1 o'clock.

Catalogues with full Pedigrees will be sent on application to
JOHN B. TAYLOR,
London P. O.
Or to
JOHN SHEARER, Auctioneer,
London P. O.
v2-11-1t.

PUBLIC SALE
OF
SHORT-HORN CATTLE
Berkshire Swine
AND OTHER STOCK.

I WILL sell on **WEDNESDAY, the 23rd day of November next,** at my Farm near Tallula, Ill., on the Jacksonville Division of the Chicago & Alton R. R., my herd of Short-Horn Cattle, consisting of ten head No. 1 Bulls, including the Prize Bulls Duke of Forest Hill., Major Story and Major Jones, (the latter has never been beaten in the show ring; has taken six first prizes this fall;) sixteen Cows and Heifers, including all my prize animals. I can safely say that it is the opinion of many of the best judges that this herd of Cows is second to no herd in the country. Nothing would have induced me to part with this stock, but the state of my health being such that I cannot hope to be able to give it the necessary attention.

I will also sell 50 head of Pure Bred Berkshire Swine. Some fine South Down Sheep.
20 head of First-Class Jacks and Jennetts.
Some fine Mules and Horses.

I want it distinctly understood that every animal offered will be sold to the highest bidder; there will be no reserves or by-bidders. Terms made known on day of sale. Tallula is 21 miles from Jacksonville and 68 from Bloomington. Parties attending the sale will be provided for on the arrival of trains, either day or night.

J. H. SPEARS, Tallula, Ill.
October 25, 1870. v2-11-1t

THREE MONTHS FREE!
Tilton's Journal of Horticulture.
15 Months for $1 50!
Tilton's Journal of Horticulture.
15 Months for $1 00!
Tilton's Journal of Horticulture.
15 Months for Nothing!
Tilton's Journal of Horticulture.
15 Months for Nothing,
AND A SPLENDID PREMIUM GIVEN FOR TAKING IT!
Tilton's Journal of Horticulture.

THREE MONTHS WILL BE GIVEN FREE to all who subscribe now for 1871, and by so doing one will get FIFTEEN MONTHS FOR $1.50.
FIFTEEN MONTHS FOR $1.00. By making a Club of Ten, each member receives Fifteen Months for $1.
FIFTEEN MONTHS FOR NOTHING. Any one making up a Club of Ten, and sending to us before the publication of the next number, shall have ONE COPY FREE!
FIFTEEN MONTHS FOR NOTHING, AND A PREMIUM GIVEN FOR TAKING IT. Any one who will make up a Club of more than ten, and sending to us before the publication of the next number, receives One Copy Free and a Premium as per Premium List.

J. E. TILTON & Co., BOSTON,
Publishers.

☞ *A Sample Copy, Club and Premium Lists, will be sent to any address upon receipt of Fifteen Cents.*
v2-10-2t.

TRADE MARK

OX AND SHEEP

USE NONE BUT THE BEST.

SOUPS AND BEEF TEA FOR THE MILLION.

STRENGTHENING Nourishment! Economy in house-keeping! LIEBIG'S COMPANY'S EXTRACT OF MEAT, the same that received the highest prizes at Paris, Havre and Amsterdam, and that is supplied to the British, French, Russian, Prussian, and other Governments. None genuine without the signature of Baron Liebig, the inventor, and of Dr. Max V. Pettenkofer, delegate, on every Jar.

J. MILHAU'S SONS, Company's Agents, 183 Broadway, New York. For sale everywhere. v2-9-3t

FOR SALE,

SIX high-bred, Young Short-Horn Bulls, one by imported Crown Prince of Athelstane (21,512), 5,487; the others by the imported *Pure Booth* Bull, "Knight of St. George," (26,514), 3,472.

D. CHRISTIE,
Paris P. O., Ont.
v2-8-4t.

Hay and Cotton Press Works.
Established 1854.

DEDERICK'S HAY AND COTTON PRESSES.
P. K. DEDERICK & CO.,
PATENTEES AND SOLE MANUFACTURERS

Dederick's Patent Progressive Lever Presses are baling at least two-thirds of the hay, straw, &c., baled in the country, and are familiarly known everywhere as the best Presses. 24 different sizes of Horse, Hand and Power Presses, for baling hay, straw, cotton, hemp, hops, cloth, hides, moss, husks, broom corn, &c. Send for Illustrated Catalogue, giving Sizes, Prices, and much other information useful to the farmer, planter, packer and shipper. Do not wait until Machines are wanted, then order in haste—but post yourself in season. We charge nothing for information. State your transportation facilities, market, &c. ADDRESS,

P. K. DEDERICK & CO., Albany, N. Y
v2-11-1t

THE BEST,

CHEAPEST AND SHORTEST COURSE of study for Boys, Young and Middle-aged Men starting in life, or wanting situations, is at Eastman College, Poughkeepsie, N. Y., the oldest, and only Practical Business Institution. The only one providing situations for graduates. Address for Catalogue of 3000 in business. Board and Tuition $110. H. G. EASTMAN, LL.D., President, Poughkeepsie, N.Y.

VINEGAR. HOW MADE FROM CIDER, Wine, Molasses or Sorghum, in 10 hours, without using drugs. For circular address F. I. EAGE, Vinegar Maker, Cromwell, Ct. v2-9-12t

Steel Tooth Sulky Horse Rake

Will do more work, easier, cleaner, and better than any other. Does not gather dust in the hay. Will rake over roughest ground. Is light and strong, well-made and nicely finished. The teeth are fine spring steel, independent of each other, and will yield to pass obstructions. Took FIRST PRIZE at the Provincial Fair, London, 1869. For testimonials, &c., send for circular. As our manufactors for 1870 is limited, orders should be sent at once.

☞ Responsible Agents Wanted in every County. ☜

JAMES SOUTAR & CO.,
Foundry and Agricultural Warehouse,
v2-4-tf. *Chatham, Ont.*

NEW ARRANGEMENTS AND GREAT INDUCEMENTS.

Wishing to give more attention to the raising of bees and queens, I offer the following inducements till the close of the coming Provincial Fair:—

To any person sending $3, I will send my single-boarded hive with improved entrance, price $3, or an individual right, price $3, and my dollar book on bee culture, soon to be published; tickets will be sent for the book. For $5, both hive and right, or an Italian queen, and the book. For $10, or the highest bid above that, during the next six weeks, a township right and the book. For $12, or highest bid above that, a township right, one hive, and the book. For $400, or highest bid above that, a right for the entire Province of Quebec, with the exception of two or three counties that are sold; this right is worth $2,000. For $200, or highest bid above that, I will sell a patent for a Self-oiling Buggy Hub, lately introduced; specimen carriage to be seen at Brooklin, Ont.; this patent is worth $2,000. Sale of townships not to interfere with sale of hives upon the above conditions.

J. H. THOMAS,
2-5-tf. *Brooklin, Ont.*

DOMINION OF CANADA

V. R.

EMIGRATION

TO THE

PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,
DAY LABOURERS,

And all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy and stock a Freehold Estate with the money needed to carry on a small farm in Britain. Good cleared land, with a dwelling and good barn and out-houses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. Farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants by the Government, is

A FREE GRANT OF LAND

(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain, on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are not liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of labourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz: Wm. Dixon, 11 Adam Street, Adelphi, London, W. C.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and E. Simays, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; Jas. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; R. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Brunswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. v2-2-12t.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Nov. 14th, 1870.

FLOUR AND MEAL.

The produce market generally has been dull during the past few weeks. Exportation from the leading grain centres of the West, in view of the approach of winter and the closing of navigation, has been very active. Hence all the distributing points are over-loaded with supplies. Millers in Ontario have procured wheat from the Western States cheaper than they could buy in the Province. This has of course tended to keep down prices here.

Flour—Fancy, $5.40 to $5.50; Spring Extra, $5.30.
Oatmeal—$5.00 to $5.25.
Cornmeal—$4.00 to $4.75.
Bran—$13.

GRAIN.

Wheat—Spring, $1.10 to $1.15; Midge Proof, $1.10 to $1.15; Scules, $1.15 to $1.25; Treadwell, $1.12 to $1.18.
Barley—Inferior, 68c.; Bright, 68c. to 72c.
Oats—42c.
Peas—66c.
Rye—70c.

HAY AND STRAW.

Hay—There has been a fair supply selling from $11.00 to $14.00.
Straw has been very scarce, and has in some instances brought as high as $13 per ton, $11 to $12 being the ordinary price.

PROVISIONS.

Beef—6c to 7c per lb.
Mutton—6c to 7c.
Pork—Mess, $25 to $26.
Bacon—12c to 13c.
Hams—14c to 16c.
Lard—12½c to 13½c.
Butter—18c to 20c.
Cheese—12c to 13c; Royal Arms, 17c; Reesor's Stilton, 18c.
Eggs—23c to 25c per dozen.
Hops—9½c to 13c.
Salt—Goderich, $1.00; American, $1.85; Liverpool, per bag, 75c.
Hogs—Live, 5½c; dressed, 6½c to 7c.

HIDES AND SKINS.

Hides—7c to 8c.
Sheepskins—40c to 80c.
Calfskins—12½c to 13c.
Wool—30c. to 31c.

New York.—*Flour*—Dull, and 5c to 10c lower; receipts, 18,000 bbls; sales, 9,000 bbls, at $4.90 to $6 for Superfine State and Western; $5.50 to $8 for common to choice extra State; $5.35 to $6.60 for common to choice extra Western. *Rye Flour*, quiet. *Wheat*, dull at 1c lower; receipts, 173,000 bush; sales, 45,000 bushels, at $1.28 to $1.37 for new No. 1 spring; $1.30 to $1.37 for winter red and amber western. *Rye*, quiet. *Corn*, dull and lower; receipts, 25,000 bush; sales, 29,000 bushels, at 89c to 90c for old mixed western. *Barley*, unchanged; receipts, 5,000 bushels. *Oats*, firmer; receipts, 34,000 bushels; sales, 29,000 bush at 56c to 57½c for western; 57c to 59c for Ohio and State. *Pork*, dull at $24.37 to $24.50. *Lard*, dull at 13½c to 14½c for steam, and 14c to 15½c for kettle rendered. *Butter*, steady. *Cheese*, quiet.

Provincial Markets.

Montreal.—*Flour*—Extra, $6 to $6 12; Fancy, $5 80 to $5 85; Welland Canal Superfine, $5 25; Superfine No. 1 Canada Wheat, $5 25 to $5 75; No. 1 Western wheat, $5 20 to $5 25; No. 2 Western wheat, $5 to $5 05; Bag Flour, $2 40 to $2 50. *Wheat*, Canada fall, $1 12; western, $1 11 to $1 12½. *Oats*—Per 32 lbs., 42c to 46c. *Barley*, per 48 lbs., 67½c to 72½c. *Butter*, dairy, 19c to 21c; storepacked, 16c to 18c. *Ashes*, pots, $6 05 to $6 10; pearls, $6 70. *Pork*, mess, $25 to $25 50. *Dressed Hogs*, $7 to $7.50.

LONDON, Nov. 8.—Spring wheat, $1.15 to $1.25. Red Fall do, 95c to $1 10; White do, $1 15 to $1 25; Barley, 45c to 52c. Peas, 62c to 66c. Oats, 35c to 36c. Corn, 65c. Rye, 55c. Butter, rolls, 19c to 21c; do, tub, 16c to 18c. Cheese, 9c to 13c. Eggs, 17c to 19c. Dressed Hogs, $6 50 to $7 12.

GALT, Nov. 8.—White wheat, $1 15 to $1 20; Treadwell, $1 12 to $1 17. Barley, 52c to 56c. Oats, 35c to 40c. Peas, 55c to 60c. Butter, 20c to 22c. Eggs, 15c to 18c. Potatoes, 25c. Pork, $6 50 to $6 75 per cwt.

Contents of this Number.

PAGE.

THE FIELD:
Early Winter Work 401
Beet-Root Sugar 402
A Backwoods Farm 404
Manure—Lime 407
Draining Wet Lands; Manure—Night Soil 408
Spring Wheat after Winter-killed Fall Wheat 409
Salting Wheat Ground 410

STOCK DEPARTMENT:
Improving Our Horses; Early Maturity 410
Weaning Colts; Cross-breeds and Grades 411

VETERINARY DEPARTMENT:
Chronic Nephritis; Urinary Calculi 411
"Sweany" 412

THE DAIRY:
Injuries and Obstructions in the Teats; About Milking; Cows Winter Themselves 412
Amount of Butter from a given Quantity of Milk; Keeping up Dairy Stock—Winter Dairying 413
Slow Churning Preferable; How to Raise Cows for the Dairy; Hard Milkers 414

POULTRY YARD:
Poultry as Farming Stock; Fowls in Confined Spaces 414

HORTICULTURE:
Vine Culture 415
The Grape Crop of 1870; Raspberries; The Black Raspberry 416
The Work Done by a Leaf; Wide Planting and Long Pruning the Grape 417
Vine Culture and Garden Talk; Twitchell's Acidometer; Blackberries 418
Keeping Grapes Fresh for Winter; A Word for the Toad; Horticultural Notes; Fall-bearing Raspberries; Protection against Mice; Orchard Not Bearing 419

CORRESPONDENCE:
Sugar Beet Seed; Pedigrees of Exhibition Animals; Coal Tar and Crude Petroleum for Roofing 420
Scheele's Green; Leached Ashes; Teeth a Test of Age 421

EDITORIAL:
The Harvest of 1870 421
Canadian Phosphate of Lime; Notes on the Weather 422

ENTOMOLOGY:
Entomological Gleanings 423
The Potato Sphinx (with illustration); The Slug on Pear and Cherry Trees 424
The Dutch Doctor's Insect Remedy; Entomological Queries and Replies 425

APIARY:
Bee-Hives 426

AGRICULTURAL INTELLIGENCE:
Agricultural Shows in West Northumberland 427
Halton County Fair; Galt Sheep Fair; Items; Sales of Stock 427
Award of Prizes at the Provincial Exhibition 428-437

MISCELLANEOUS:
The Grain Exchange of the World; Wool Product of the World; Cheap Hydrogen; Extracting Wheel Grease 438

THE CANADA FARMER is printed and published on the 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 25 and 26 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (POSTAGE FREE) payable in advance.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

P AGRIC C

VOL. II. No. 12 | TORONTO, CANADA, DECEMBER 15, 1870. | NEW SERIES.

The Field.

Barn-yard Management.

In the course of many visits we have paid to farmers throughout the country, one of the most noticeable defects to be found, even amongst those who may be fairly considered intelligent and progressive men, is the want of any proper system of managing their barn-yards. It does not seem to occur to them that the making and saving of manure is the main point in any system of husbandry, looking forward to a steady amelioration and improvement of the productive capacity of their farms, be they large or small.

Some have their yards trodden into quagmires of mud, for want of some absorbent material; while others locate them on a hill-side, from which every rain storm washes away all the richest and best qualities of the manure into some ditch or creek. Some again do their best apparently to save all the manure they can, yet allow it to lose much of its strength and value through being dispersed over a large extent of surface in the yard.

We propose to give a few general rules to regulate management of barn-yards.

First—The yard should be so located and constructed that none of the urine or salts in the manure can be washed away.

Second—It should be entirely cleaned out, and every particle of manure be applied to the soil before the stock are to occupy it for the winter, and again commence the work of making their own food into plant food.

Third—The bottom of the yard must be made hard and solid enough to prevent the liquid elements of the manure from leaching away into the soil on which it is located.

Fourth—The entire bottom should be filled up with muck or dry loam, to act as an absorbent of the liquids; over this should be placed a layer of straw several inches in depth.

Fifth—A mixen should be formed, if possible, under a shed; to it should be carried all the droppings from the stables, byres, pigsties, etc., to be thoroughly incorporated together, and the straw and droppings of the yard mixed in as often as they can be got partially worked up by the treading of the stock. This mixen should be so managed that the manure, while being made, will ferment, yet not rapidly, so as not to become decomposed till near the time for applying it to the soil. This fermentation can be controlled by keeping the mixen moist, by adding water when too dry, and not allowing an excess of straw to get mixed into the manure.

Sixth—The entire yard, including the layer of muck or loam at the bottom, should be cleaned out and added to the mixen at least once every three months, and a fresh supply of muck or other absorbent applied to the yard and covered with straw.

By a proper course of management the amount of manure made can easily be doubled, and the yard kept sufficiently clean and dry for the comfort of the stock that are turned into it during the day time, when loosened from their stalls. It is better to keep adding fresh layers of straw, a little at a time, as the surface of the yard gets wet and dirty, than to put on a large bulk at once that will take all winter to be worked up, and then be of small value for want of composting.

To get water enough for use in the mixen, and also to wash out the floors of the stalls and byres once in a while, a cistern should be provided in the yard, to which all rain-fall on the roofs of the various buildings adjoining the yard can be conveyed by pipes, and afterwards pumped out as required to be thrown on the mixen, or used for watering the stock, if the supply is sufficient for both purposes.

This making of a mixen will cause some extra work to the farmer and his hands, but the labour bestowed upon it will be more than amply repaid in the increased value of the larger quantity and better quality of the manure manufactured by means of it. The object of having the mixen under cover is to prevent the too rapid evaporation by the sun of its best constituents, during the warm bright days of spring and early summer, before the land for root crops, to which most of the manure is usually applied, is ready to receive it. The trampling of stock on the mixen tends rather to improve it, by making it more solid and better mixed; hence it may be open to the access of stock, but they should not be allowed to lie on it.

A Backwoods Farm.

During the time that some of us were making potash, the rest were busily and constantly engaged in

LOGGING.

Here is almost the most important part of clearing a new farm. The work must go on continuously from day to day. Four rollers and one driver ought to log an acre a day, or say, unless hindered by bad weather, twenty-four acres each month. We always did this on good, dry, hard wood land, where the burn had been perfect; and subsequently, when we jobbed out five or ten acres to some hard-working young fellows, they logged nearly eight acres in one week; but, the timber was hard wood, and no brush or chip whatever, and no large elm or swamp timber predominated. Where this was not the case, and the land was wet and covered with swamp timber, and consequently the burn not so good, and often very bad, half an acre would be good work to get through in a day. Where this is the case, then the trouble begins, picking and piling, chips and brush, until it seems as if you would never get through.

The last fifty acre piece that we logged was accidentally set on fire by a neighbour, before it was half ready to burn. The fire ran through it without burning one quarter of the brush, and it required twice the time to finish the logging; in fact, it was not finished until the following season, and by that time the piece that remained unlogged was covered with Canada thistles, which seem indigenous to our land, they spring up

1954 TORONTO

everywhere, when a new fallow is left a summer unoropped; and to this day that piece feels the neglect, as the thistles are most abundant, whilst in those portions that were cropped the first year and seeded down at once, no thistles whatever have appeared.

We first tried logging with ordinary cattle, but the attempt soon convinced me of its entire uselessness. Such a job of logging as we had to do required the best team that could be had. I gave it up after a week's trial, and left the farm for parts unknown, determined not to return until I had procured a first-rate yoke of oxen,—smart, but very heavy, and not older than between seven and eight. These I succeeded in finding. They were eight years old, very heavy, each weighing at least 1,600 or 1,700 lbs., nearly 5 feet 6 inches high, and in fine condition; they girthed 7 feet 8 inches. Splendid animals they were, and we logged nearly 120 acres of land with those oxen that summer. Of course we fed them like horses, and had an accident happened, either of them would have been good beef. I have often seen those oxen break a new yoke at one jump, when attached to too heavy a log. After breaking three or four yokes I am convinced they understood the trick of doing it, and did it on purpose to be allowed the necessary rest, while we were making a new one. Our four rollers and driver, with one man to "chunk up" and burn, made short work of clearing an acre; twenty or twenty-four acres a month made a great show, and this was the result of first-class men and a crack team.

LOGGING BEES.

During the first years of our clearing up the farm, many of our neighbours made logging bees, and we were always asked, but never went. I set my face altogether against logging bees. Raising bees *may* be borne, and possibly are requisite, but bees for anything else are miserable things—a regular waste of time. For, if you get your neighbours to come to your bees, you must go to theirs, no matter how important it may be that you should not leave home; go you must. There is absolutely no saving by bee labour, at any rate. If you get fifty men to help you one day, you must go fifty days to help them, and often some one will get you to go twice, and occasionally more, to their once coming. And you may add fifty days in addition almost lost by it, as you always get racing, and are, consequently, over-worked and often strained, and seldom do anything worth while the next day after a bee but rest and recruit. We know whiskey is at the bottom of this, and any quantity of whiskey is always drunk at bees in a new neighbourhood, whilst clearing up the land. Not that this sort of labour requires whiskey more than any other, but such is the general custom. And not as long as logging bees last will the people listen to temperance doctrines. No sooner, however, is the logging all done and farming regularly begun, than farmers all at once attend temperance lectures, and they find the benefit of them you may be sure. And this is the principal cause of the great improvement in almost any neighbourhood directly the land attains the name of "Old Cleared Farms."

SPRING WHEAT.

The next year we sowed about sixty acres of spring wheat, and as the land was in first-rate order we certainly expected a first-rate crop also. All went well until the 12th of July, when the wheat was just "shot out," and on the night previous there occurred in our locality a most untimely hard frost, so much so, as to freeze water quite over, as some pieces of thin ice were found and brought into the house next morning. This is most unusual, but I distinctly recollect this frost occurred on the 12th, and that it was a holiday with some of our men who were Orangemen, and the records in the day book prove the fact as well. The effect was to prevent the grain ever filling in the upper parts of the ear, and at harvest about nine bushels an acre was the crop instead of at least thirty. Fortunately our means could stand the loss; had it been otherwise it might have ruined us. We were not one jot discouraged by this loss; wheat was high in price that year, and as expenses were about paid we were not as badly off as we might have been. Meantime our stock of cattle and colts increased.

RAISING COLTS AND CATTLE.

We had bought two or three brood mares, and a reasonably good entire horse, and we were thus enabled to breed colts without any extra expense, and nothing paid better on our farm for years than this branch. For about ten years we had only two accidents that ended fatally to the young foals. One was shot for a deer, and the other was mired in a ditch. We always worked the mare as long as we could before foaling, but not afterwards, if we could possibly avoid it. We considered that with care the mare was uninjured by such treatment *before foaling*, but that when worked afterwards the colt suffered.

The horned stock also increased fast, and now numbered over twenty-five head, all raised without any expense that could be well reckoned as such. They all increased at about the rate of $10 a year for three years, and the quality was good, as we never could bear to see the poor half-starved miserable animals such as usually are to be found about a backwoods farm. The cause of poor stock in such places is chiefly due to the miserable quality of some little runt of a bull; a wretched beast, that it would pay the settlement generally if some one of their number would shoot it, and pass round the hat to collect the value for the owner. Laws against the running of such animals at large are now generally pretty strictly observed, and in such cases the owners of the brutes are at once notified through the pound-keeper that the obnoxious animals are impounded.

GROWING BARLEY.

We held that year a great consultation as to the heavy loss arising from the failure of so much wheat two seasons following, and next year we determined to sow upwards of sixty acres of barley. Seed was very high, and we anticipated great returns, but unfortunately a remarkably dry season occurred that year, and many fields of oats and barley all over the country failed to grow more than from eight to twelve inches high. Our return at harvest was about three times our seed. Nothing daunted we determined to try fall wheat next, and therefore having well fallowed about twenty-five acres of good land the previous year, we sowed fall wheat on it and prepared about thirty acres more of fallow for spring wheat, the year following.

The weather was beautiful the next year, about April and May, and, contrary to advice, we ploughed the land twice for wheat, and got it sowed in splendid order. The dry weather continued, and our extra care did all the mischief. We soon found that the second ploughing had so loosened the soil that the wheat plant began, about the middle of June, to look miserably yellow and lean. This was to be attributed to having the soil too loose, especially when combined with dry weather. Had we had our usual June rains the soil would have settled hard and firm; but the dry weather finished what the loose soil had begun, and at harvest nine bushels an acre was our crop of spring wheat. The midge attacked the fall wheat, and we only harvested twelve bushels an acre of this.

We had seeded down a large quantity of the land this year and determined to graze cattle instead of growing wheat, until the stumps were rotten; and this year we put in only about thirty-five acres of wheat, fifteen of fall, and about twenty of spring. The fall wheat at harvest yielded thirty-five bushels to the acre, and the spring about twenty or twenty-two, and we almost regretted seeding down so much, but we nevertheless determined to seed down more, and go into cattle more extensively, and then await the rotting out of the stumps and results of draining to complete our farming operations.

BEST ROTATION FOR NEW LAND.

From all our farming experience, I am convinced that, under all circumstances, the best course to follow with new land is to get the first crop of wheat, and then seed down directly and keep the land in grass for at least seven years afterwards, or until the stumps are completely rotten and all loose. Then to collect all the small stumps, roots and rubbish, and set fire with these appliances to the large old undecayed stumps, most carefully tending the fires, never neglecting them to do other work, but steadily working amongst them all the time they are alight, constantly "chunking" up and forcing. By

this means two men can very well attend to and burn out twenty-five to thirty acres each week, provided the weather has been quite dry and the wind blows pretty fresh each day. You would hardly believe how complete a clearance can be made of hard wood stumps by this means. Last year we had a twenty-five acre field in just the right state, and one man in three days burnt almost every stump out of it. But never, under any circumstances, allow the half-and-half plan of setting a few stumps on fire whilst you are ploughing in the field. They will not be attended to or kept going, and the consequence will be that the stumps will almost all be half burned and all the dry and decayed part consumed, whilst the remainder will be quite sound and preserved by the fire from further decay for some years longer; and moreover clumps of roots trouble and annoy you for a long time.

Farming, like all branches of business, must be done right, and with capital, and to the best advantage; and if you grow grass without good stock to eat it, you suffer; and if for want of stock you grow grain when it ought not to be grown, you suffer. Many in their wisdom would say it served you right, but I know better. Farmers, until they get forehanded, must live, and must grow what their capital enables them to produce, or rather the want of it forces them to grow, and generally such farming is more the misfortune than the fault of the farmer.

C.

Beet Root and Beet Root Sugar.

No. VIII.

This subject is engaging the attention of English farmers, and from the experimental and scientific class it has passed into the hands of some of the best and most successful farmers in England, who are now growing sugar beet by hundreds of acres, and with very satisfactory results.

To show that in previous articles there has been no exaggeration respecting the produce both of the root and the sugar, the reader is requested to note the following extract from a speech made before the Chamber of Agriculture at Cirencester, in England, and which is taken from the *Agricultural Gazette*. After a lecture had been delivered on the subject by Professor Church, of the Royal Agricultural College, and the usual discussion arose, Mr. Edmund Ruck, one of the best and most successful farmers in England, stated to the following effect:

"In consequence of the several articles on the subject of beet root growing which have been going the round of the British press, he (Mr. Ruck) went to Lavenham, where Mr. Duncan, the great sugar refiner of London has erected some works for the manufacture of beet root sugar. He found there a very expensive and extensive set of buildings and machinery. Mr. Duncan had been giving the farmers of that district one pound per ton for beet, delivered at the manufactory, and the farmers took back the pulp at 13s. per ton. The crops raised ran from sixteen to twenty-four tons per acre." [I have only reckoned on ten tons per acre in Canada.] "In the third week of April last he (Mr. Ruck) went to France, with the object of examining their mode of manufacturing, and enquiring as to the profits derived from it. He found that a ton of beet would yield twenty gallons of spirit, and that the pulp would pay for the expenses of manufacture and the interest of the money employed. This spirit would sell in England at two shillings per gallon (over and above the amount of the duty), so that there is a margin of 2s. per gallon, or £2 per ton.

"In most establishments on a large scale in France, both sugar and spirit are made, and Douai is the great sugar market of France. He was surprised to find that good land was sold generally at £100 per acre in France; but if within five miles of a manufactory, then the price rose to from £135 to £140 per acre. It was not unusual to cart beet seven miles to a manufactory, and if sent by boat on canal it was sometimes taken not less than thirty miles. He found that beet had in some cases been grown for fifteen years in succession, and a yield of thirty tons per acre would give, at £1 per ton, £30 per acre to the farmer, and an equal sum to the manufacturers. His hearers must bear in mind that the pulp will pay all expenses as well as interest on the capital employed in manufacturing. There are two kinds of beet principally planted, viz., the Colet Rose, a red beet (but not the one usually planted in gardens for salad), and the White Silesian, the last named yielding the greatest per centage of sugar, but only about two-thirds the weight per acre of the former. Great attention was required not to allow their beet to grow coarse, and the only safe way to prevent this is to have the plants very thick in the ground, say in drills sixteen inches wide, with the plants cut out at eight inches apart. The three principal systems of manufacture are the Champonois, Le Plé, and the Colette. The last much resembled cider making here (in England), on a very large scale. In the Le Plé system you take out the saccharine matter (sugar) by applications of hot water. The extraction of the sugar and the spirit from the roots was too elaborate a process for him to enter into. The value of the pulp per ton varies very little in the two systems, but that from the Colette will keep any number of years, if properly stored, and the pressed pulp and "cossettes" from the Le Plé system will keep for a year or two. * * * * Mr. Ruck said that it had been proved to his satisfaction from analysis of beet grown abroad and those grown in England, that no country had a better soil or climate than England for growing them profitably. The idea that a succession of crops of beet being taken off the land is injurious to it, was in his opinion a complete delusion."

Now the foregoing evidence, coming from Mr. Ruck, cannot be too highly valued. He and his family farm most extensively and successfully; they have raised large quantities of sugar beet, and it was only a few weeks ago that they exhibited their crops of beet (among other crops) to a committee of the first agriculturists in England, who were highly gratified with them, and who in the speeches which the members of the committee made after the entertainment which followed the exhibition and examination of the Messrs. Ruck's farm, were very complimentary to those gentlemen on the results of their labours.

It will thus be seen that in the previous articles given on this subject I have carefully kept *under the mark*, and have not by any means given a flattering statement of the profits which may be relied on from the growth of beet root for sugar in Canada.

VECTIS.

Leached Ashes as a Fertilizer.

An exchange reports the remarks of Mr. Quimby at a meeting of the Rochester Farmers' Club, as follows: "Leached ashes are good for all crops—for corn in the hill, and especially valuable as top dressing for wheat and clover fields, and meadows generally. During the past three years he had drawn 10,000 bushels on his farm, which he spread on land at the rate of 200 to 300 bushels per acre. He covered forty acres in this way, and meant to ash the entire farm. They had doubled his wheat crop and wonderfully increased his crop of grasses, especially clover. Land which had been run down too much to seed with clover, produced heavy crops when manured with leached ashes. He got a good catch of clover where he applied leached ashes last year on his wheat and rye, while the balance was a failure. He could see a great difference in the growing wheat where the land was manured with ashes and where it was not."

Turnips vs. Wheat.

In one of my wanderings, a year since, during a leisure time, I chanced to receive an invitation to spend a few days with a friend to the north of Guelph, and was told that the farmers in that locality were far ahead of many other sections of the country in the growth of turnips and fatting stock. I could not at that time leave home, but this autumn, having some spare time, and also some business in that locality, I availed myself of the invitation to pay my promised visit. One great attraction was that my friend Mr. S. himself was a great lover of grade stock, and farmed 190 acres of cleared land, and grew large quantities of turnips, with which he not only fed the growing cattle, but also fattened about ten

head each year; and as he had boasted a little of his success in the culture of turnips and feeding them to stock, I thought I should derive many useful hints from him and his experience.

The stage put me down at a cross road about four miles from his house, and I soon put myself on the other side of that distance. I met with a hearty welcome, and next morning we examined the stock and turnips. There were thirty head of very handsome two and three year olds, all sired by a thoroughbred bull, and a fine dairy of sixteen cows.

The two ten-acre fields of turnips, the growth of that year, were alone well worth the trouble of inspection. There were, I was assured, at least 750 bushels per acre, and each acre was destined to feed one bullock, and afford an abundance for a proportion of the living stock beside. The plan pursued was to fallow the land the previous year, and manure in September, leaving it well ridged up and drained. Early in spring, as soon as the first crop of weeds started, the cultivator was used freely, harrowing followed, and the land was again cultivated and again harrowed as the weeds sprouted. By the twelfth of June, the seed was drilled in, and 1½ to 2 pounds an acre was sown—enough, as my friend said, for the fly and himself. The rows were twenty inches from centre to centre, and the plants were left about twelve inches apart in the rows. Their growth was most rapid by this course of cultivation, and a peculiar little cultivator or gang-plough, reversible in its action on the land, was passed at intervals between the rows. A most novel harrow was also used, made of a plank full of spikes. There was one great secret of success—never to allow the weeds to gain head. The cultivating and harrowing between the rows was soon done, but the hoeing was a more serious job.

The turnips were twice hoed *in the row*, the first time without much care except to reduce the young weeds, the second time more carefully, to thin out and single the young plants. Mr. S. told me that he should like much to take a contract to raise any quantity of Swede turnips at four pence per bushel, delivered on the field in heaps. I could not think that this would pay, but he assured me that if the turnips were consumed on the farm, the value of the manure thus made would of itself pay him a small profit towards the expense of the turnip crop.

The figures given me were as follows, premising that the fallow had to be made at any rate, whatever crop was sown, and the manure for the turnips hauled out, supposing he were going to sow spring wheat. Winter wheat had not been as certain in its results for some years past as it formerly was—not even when new land was town. He accounted for this by depreciated seed; in fact there was no other satisfactory way of doing so, and the comparison was therefore made between the turnip crop and one of spring wheat, premising, as above, that the land was prepared for either turnips or spring wheat.

The account would stand thus:—

Dr.

To seed wheat, 1½ bushels at $1	$1 50
Sowing, 25c.; harrowing, 50c	75
Once cultivating	50
Cradling and binding, with board	1 50
Hauling	75
Threshing	1 00
	$6 00
Rent of land	2 00
	$8 00

Cr.

By 15 bushels of wheat at $1	$15 00
Value of straw as feed	2 00
	$17 00

Turnip crop—Dr.

To seed, 2 lbs. at 30c	60
Twice cultivating at 50c	1 00
Twice harrowing at 50c	1 00
Drilling	1 00
Twice cultivating at 50c	1 00
Twice hoeing at $1	2 00
Digging, pitting, or hauling home, at 20c. per load	4 60
Cost of feeding covered by value of manure.	
	$11 20

Cr.

By 750 bushels turnips at 6c	$45 36

Showing a vast preponderance in favour of growing turnips at 6c., instead of spring wheat at $1, when only getting 15 bushels an acre; and this is about the average crop all over the province.

These calculations led me to enquire Mr. S.'s opinion as to the practicability of growing sugar beet at $4 a ton, or 10c. a bushel, cash, when delivered at the factory. He answered unequivocally that he would readily undertake the growth of 100 acres at that price, provided the delivery could be effected without hauling more than from one to two miles. I afterwards obtained a similar opinion from two or three practical turnip growing farmers. The chief objection made to the comparative advantages of growing sugar beet when hauled off the farms, instead of turnips consumed on the place, was the absence of the large quantity of manure made by the feeding of turnips to the cattle. One man who farms 225 acres of land informed me that he had grown as high as twenty acres of turnips a year, and fully corroborated the foregoing statement, and, as additional statistical facts, added, that all the farmers to the north of Guelph, about Elora, and still further northward, had for some years depended almost entirely on the growth of turnips and fattening cattle; but he considered it paid better to consume at least a bushel a week of chopped peas, or its equivalent in other grain, to each head of cattle fed. The manure was still better, and the cattle fed much quicker. His figures were as follows:—

To purchase of steer, four years old	$30 00
Three months' feed of grain at 1 bushel per week at 6c	7 20
200 bushels turnips at 6c	12 00
Straw *ab libitum*.	
	$49 20

His steers averaged, when fat, 1,300 lbs. each, and he obtained $5 to $5 25 per 100 pounds for them, live weight, and amounting to about $70 each, showing a good profit on the transaction, besides the manure. No hay was fed, but straw substituted. In the manure he considered himself repaid for his labour of feeding by this article alone. He assured me that he had kept separate the manure obtained from ten head of cattle, and that during the three months they were stall-fed he had hauled out thirty loads of the best manure. Of course, the cattle were liberally supplied with bedding. This was applied to a fallow where barley was grown, and the manure was carefully distributed over nearly three acres of the land. The proceeds of the three acres so sparely manured was measured and compared with the yield of the same quantity of the same field, but unmanured, and resulted in an increase of twenty-eight bushels of barley, which at 80 cents, the price obtained, made the manure absolutely worth, from these ten cattle, less the cost of hauling to the field, $22 40, or nearly $2 25 to each beast fattened.

I thought the value very low stated, as certainly the effect of the manure would be felt in several subsequent crops, and I should have been willing to place it at double the value he gave me on this account alone.

C.

Manure—Gypsum.

"Gypsum," "Sulphate of Lime," or, as it is generally known, "Plaster of Paris," is used greatly, and with usually beneficial results, by the majority of our Canadian farmers. The fertilizing powers of this manure upon certain crops and on certain soils, have been very favourably reported upon by many eminent American and British agriculturists.

The name Plaster of Paris was given when gypsum first came into general notoriety, from the fact that large beds were found and worked in the hill of Montmartre, near Paris.

The analysis of gypsum shows it to contain, of

	Parts.
Pure calcareous earth or lime, about	30 or 33
Sulphuric acid	32 " 43
Crystallized water	38 " 24
	100 100

Its dissolution in water, owing to the presence of a large proportion of sulphuric acid, is a process of slow accomplishment, requiring from 450 to 500 times its own weight of water. Its purity varies in different beds, and hence chemists have not well agreed in their respective analytical reports. A good test of its purity is obtained thus: Put the ground powder in an iron pot alone, over the fire; when it becomes heated it will give out a strong sulphureous smell, accompanied by a rapid bubbling; if this ebullition is brisk and the substance will admit of a straw being thrust with ease to the bottom, it may be considered pure.

Traces of the discovery of gypsum are discerned in the writings of the ancients; but not until the last centuries were its properties generally known in Europe. At that time some experiments of its use were reported on by eminent German agriculturists to the Economical Society of Berne, in Switzerland, when it rapidly spread over that country, France, and many other parts of Europe. It was, however, in America that its merits became most generally recognized. Indeed, it was exported to America in large quantities, and from the Delaware was conveyed as much as 150 miles by land carriage, until discovered in the State of New York.

The stone, when ground to powder, produces from 20 to 25 bushels per ton.

Experiments were made in England of the relative values of plaster simply ground and when calcined. It was thought that by burning much of the water contained might be expelled, and thus the proportionate weight be greatly reduced. The water cannot, however, be expelled from the sulphuric acid except by the most violent heat, and thus the attempt was found practically useless, and was consequently abandoned; also, experiments upon the use of plaster when calcined proved that there was an almost imperceptible difference between its effects when burned and when simply ground.

Upon our light and sandy soils the effect of gypsum seems to be most rapid and lasting, and in Canada I find that the farmers on the lighter soils apply it more generally than those on the clay lands. Upon wet land this manure has little or no effect. The growth of young clover is very materially quickened by a good top-dressing of plaster, and its benefits are more particularly observable in its application to all leguminous plants. This manure, like lime, is a stimulant. The caution contained in the last article on manures as to the evil effect of a too oft repeated application of lime, apply with more or less force to this manure also.

I have seen it used on fall wheat with various results. No doubt, it stimulates and starts a young wheat crop, but it also gives the young plant an unnatural push, which weakens its strength, and thus materially reduces its power of standing a long and severe winter. Its application in the spring on winter wheat I believe to be of great benefit. Not only does it push forward and revivify the young wheat plant after its long torpor, but it is upon the ground for the benefit of the clover crop.

Its exact means of action upon the growing plant yet remains clouded in much doubt and uncertainty. It is very generally supposed that its effect is due to its power of attaching moisture to the plant upon which it rests. Sir Humphrey Davy, however, contradicts this, for he says that even allowing gypsum to have a great attraction for water, yet the same substance, owing to the large proportion of sulphuric acid, also retains its moisture most strongly, and therefore would give it off very slowly indeed to the leaves and roots of plants with which it may be brought into contact. Moreover, this great chemist denies the fact that gypsum has a strong attraction for water, and gives the following experiment in support of such denial: ½ ounces of gypsum were exposed for three foggy nights to the air, and on the third night being weighed carefully, it was found that the increase was not quite half a grain.

It has also been urged that, when applied to clover just before rain, its effects were not perceptible. No doubt this has been owing simply to the fact that the rain has washed it off the plants into the ground, where its effects upon the plant by the root would not be so observable, because not so rapid; and yet it is well known that that part of the field upon which it has been spread invariably retains the dew for some time longer in the morning than those parts upon which gypsum has not been laid.

I think that even with these contradictory reports and opinions before us, we may, at any rate, be certain that its benefits are great upon many crops—wheat, spring grain, corn, turnips; but more especially upon clover and the grasses. For my own part, I consider that in this very power of retaining moisture consists the great value of gypsum as a top-dressing in this country.

When all other sources from which moisture may be drawn fail the plant, the gypsum is giving out its moisture, very slowly it is true, but in sufficient quantities to keep the plant supplied and growing from dew to dew and from rain to rain. In England, where they do not often suffer from a too dry atmosphere, the opinions of farmers upon the use of gypsum are very varied, and it does not seem to have anything like as proportionate a value as it has upon this our dryer continent.

At one of the regular meetings of the Ancaster Farmers' Club, last winter, when speaking to the subject of plaster, brought forward in an able essay by a gentleman of this locality, although some difference of opinion appeared to exist as to the time of application and the immediate action of this manure, yet the immense benefit to be derived from a generous use of gypsum on many crops, and more especially upon clover, was most cordially endorsed, and proved by reports of different experiments by the majority of our most successful farmers.

Ancaster. C. E. W.

Growing Green Crops for Soiling.

Some intelligent enterprising people in that part of the County of Oxford near the Township of Dereham, have for some time past been growing Indian corn, sown broadcast, for the purpose of soiling dairy stock, when the fervid heats of summer cause the grass and pasture to run short. About the middle of May they sow on the richest land they have, three bushels of corn to the acre, broadcast. The growth is so rapid and rank on rich land that no hoeing is required, and the corn soon takes the destruction of all seeds into its own hands. The stalks are allowed to attain a growth of about § of an inch in diameter, and from four to six feet high. The cattle are then plentifully supplied with them, cut and carried to their yards. They thrive wonderfully well on this food, and rather increase than decrease their milk, even when taken from good pastures, especially when the ear begins to form, at which time the cows become quite fat and the milk affords butter of the richest yellow colour. Until the ears begin to form the butter made from green corn stalks is rather white, though very sweet and palatable.

This feed is continued until fall rain has caused a fresh growth of grass. The remaining corn, that has by this time become rather old and stalky, is cut with a mowing machine and cured like hay; after which it is carefully stacked away, in small parcels, so as to avoid much heating, and forms the very best quality of fodder.

The part of Canada here alluded to, is probably favoured with a peculiar climate, and well adapted to the growth of corn fodder. The soil also is a rich sandy or clay loam, certainly one of the best soils for the above purpose; but many localities would find it very much to their advantage to follow this course also, especially where late autumnal frosts are likely to prevent corn from maturing.

The inhabitants of Durham claim that this course of husbandry is better fitted for their country than that of growing turnips, and costs much less, especially as turnips are not generally a success with them. Many sorts of corn have been tried, from the early white Canadian flint to the tall American horse-tooth; but the latter grows too rankly and too soon attains a strong woody substance in the stalk. The medium-sized, but early, varieties are the best liked. That kind called "evergreen," or sweet late corn would, I think, answer remarkably well, as it is greatly addicted to suckering, so much so as usually to throw two or three suckers to one stalk.

The corn of this variety would not probably ripen, but the immense quantity of young green succulent sprouts would, I think, amply compensate for this want. One great advantage attending this course of husbandry is the great quantity of the richest kind of manure thus formed. Of course the yard or stables where the cattle are fed, are always well littered with straw, and the result is soon shown on the farm.

My informant states that the quantity of green corn thus grown on an acre is enormous, and the cost (except for seed) very little. Some months since I travelled on the railway with a cattle and corn farmer from the State of Maine, and he described a very similar course pursued in that State by himself and his neighbours, who depend altogether on raising cattle and making butter for the city of Boston market. He always milked fifty to seventy-five cows, bought in early spring from Canada and elsewhere, and when winter came on they were always, with few exceptions, driven off to other markets for fattening purposes. Vast herds of these cows go to New York, and are fattened on distillery slop. This food when fed hot is very stimulating, and cows that only gave in the month of November, on farm-feed, say half a gallon of milk daily, when put on distillery slop and warmly housed, at once often raise their quantity to two gallons a day, and being strippers, the milk is exceedingly rich.

Wintering over such cows does not seem profitable with the farmers in the State of Maine, who prefer buying in the spring, and selling in the fall; and I am credibly informed that the extra condition in which the animals are in the fall, on the before-mentioned food, principally formed of green corn, causes them to bring almost as much, as strippers, as they cost when fresh calved. C.

Drying Roots.

A new patented process of preparing roots for cattle feeding, by which it is claimed that they are doubled in value at a small cost, has been brought out in England The principle of the process consists mainly in drying out a portion of the water contained in the roots, and so rendering them more concentrated, while the heat used in the process (the mode of applying which makes the patent) partially cooks the roots, and so makes them more easily digestible. By thus getting rid of a portion of matter (water) of which there is an excess beyond the actual needs of digestion, the roots are rendered much more valuable to feed to fatting animals, as being less bulky in weight, while more concentrated in substance, more can be consumed by the animal in a given time, and so the process of feeding rendered shorter, without the necessity of using expensive foods, such as meal or oil cake, to quicken the process of fattening.

The thing could easily be tried here, on a small scale at first, and if found successful and profitable, those of our farmers who make the fatting of cattle or sheep during winter a part of their routine, could easily enlarge upon the primitive method we propose to give, which is nothing else than to try the baking of a few bushels at a time in one of those brick bake ovens so often found on Canadian farms.

The roots need not be subjected to great heat, but put in after the batch of bread is out, and left in till the oven cools, keeping the door shut, but allowing egress by the chimney to the vapour evolved. A slight blackening of the roots, provided they are not burnt, would not hurt them. All the valuable flesh and fat-forming elements in the roots would still remain, as does the starch and gluten in the loaf after being baked. It is said that in the experiments tried in England it was found stock would eat greedily of dried mangels and turnips, and fatten much more rapidly than on the raw roots.

Waste of Forests.

There has been, with very few exceptions, a wanton waste of the forest resources, not only of our own country, but of the entire world. Man has come to regard his early cradle, the forest, as an enemy, instead of as a benefactor. In England the prudent care of our forefathers to watch the growth of our forest trees—to secure a perennial supply of oak for our ships, as well as of yew for our bows, is altogether forgotten. The forest rights of the Crown over a district that has been wooded since the time of Julius Cæsar, the forest of Epping, have been so purposely neglected, that it has needed the very unmistakeable expression of public feeling to elicit from the Solicitor-General anything more than a joke upon wolves and bears. The 100,000 acres of forest, under the administration of the Woods and Forests, has been so admirably managed, as to arrive at the result of a rental at the rate of three shillings and six pence per acre. The wooden walls of Old England are now so much an affair of the past that it may be said that we only regard timber as necessary to ornamental landscape, or as a material for lucifer matches. It is in this country and its dependencies, and in those of our American descendants, that the laws of Nature as to the clothing of the earth with timber have been the most persistently broken. But we are far from being alone in our folly. To whatever part of the world we turn we see indications that waste and destruction bring their own vengeance in their train. Of the effects produced upon climate by the denudation of the soil there is no room for doubt. To a certain extent the influence of human labour in the thinning of forests is beneficial, but the limits between culture and destruction are rarely maintained. The increased aridity of Palestine, of Spain, and of the South of France is well known. In the former case it has been partly caused by the cutting down of the olive, a barbarous incident of warfare, merely forbidden by ancient law. In the last-named country it has been the need of fuel that has led to the denudation of so many districts, and the double evil has ensued, first, that the humidity of the climate has been reduced to a formidable extent, and secondly, that when rain does fall, in any unusual proportions, the absence of the great natural absorbing power of forest districts allows the entire product of the rainfall to be discharged at once by the natural drainage, thus causing those floods which have proved so formidable in their ravages within the last few years. The denudation of the forests of England is by no means a new grief. More than two hundred years ago Mr. Evelyn complained of the rapid extirpation, "root and branch, of all those goodly forests and woods which our more prudent ancestors left standing for the ornament and service of their country." On the confiscation of the Church lands in 1536 immense forests were cut down, and during the civil war that commenced a century later many Royal forests, as well as private woods, were entirely swept away. In France there yet exist 2,700,000 acres of State forest, earning a gross revenue of £1,740,000, and a net revenue of £1,240,000 per annum. Bavaria contains nearly 2,000,000 acres of forest; Prussia, upwards of 5,000,000; Austria no less than 13,000,000 acres, realizing an annual export value of £3,000,000 sterling. In France and Germany exist schools of forestry in connection with the service of the State, and men of a superior class of intelligence are carefully trained in these establishments for the scientific management of this important part of the national property.—*Builder.*

Gentleman Farming.

Very pleasant to talk about. Why don't one hear of gentlemen printers, gentlemen merchants, gentlemen doctors, and gentlemen everything else? The great popular mistake of those who talk of gentlemanly farming is, that they suppose the practical farmer to be a boor of necessity, and that his calling is a vulgar one, unfit for an educated mind, yet when sublimated by intelligence, education and refined associations may be made respectable! "Gentleman" farming is a rank humbug, as any other profession or trade would be, followed in the same fashion—that is, by hanging out a sign, furnishing the shop, store or office with its stock-in-trade, and then leave it to the clerks and shop boys to take care of, while the principal goes about talking politics, or spending his time in the bar-room, or fooling it away in other nonsense.—*Boston Cultivator.*

Soot.

This is an excellent manure: but, as in many other cases, one must know how to use it. It is: First—Good for all fruit trees; then, for meadows over-run with moss, and for clover. In the kitchen garden, reserve it for the onions. For other vegetables it is more hurtful than useful. Use it with moderation. In small quantities, soot produces good results; in large, it disorganizes the plants, burns and cauterizes them, eats both leaves and roots. On a rainy day, give your soil a weak dose; prudence says, mingle earth and mud with it. Above all, do not make use of it in hot and dry weather.—*La Gazette des Campagnes.*

Rank Wheat.—A correspondent wishes to know "what is considered the best treatment for fall wheat too advanced for the season." Turning on sheep to feed on the too rank growth is sometimes practised with good results.

Securing Fence Posts.—By nailing a strip of board on each side of the post at the lower end, sagging and heaving may be prevented. The edges of the boards should come even with the bottom end of the post, and project a few inches each side, being crosswise of the fence line. The projection need not be more than two or three inches on a side, and the strips not more than four inches wide, yet wider would be better.

Potatoes on the Manitou Islands.—Some of the finest potatoes that we have seen this season were grown on the Manitou Islands, in Lake Michigan, at something over 45 degrees north latitude. Parties whom we saw on the islands stated that they often let the potatoes stay in the ground all winter without digging, as the great fall of snow there in the latter part of the fall prevented them from freezing. It is also quite common there to plant potatoes in the fall that are wanted early the next season. The Colorado beetle has not yet reached this paradise of potato raisers.

When board fences become old, and the boards begin to come off, nail upright facing stripe upon them against each post, and the boards will be held to their place, and the fence will stand several years longer. Always set a post fence over a ditch, or near a good drainage, and the post will always remain dry, and will last many years longer than those standing in wet subsoil.

In the top-dressing of meadows with compost, we are adding to the soil, raising it and inviting the roots of the grass upward, thus thickening the sod. This is the most precious of manures—this thick mat of roots and compost. It will prolong the meadows, and add to the production of grain when ploughed. On a gravelly soil this compost will be improved if one of the principal ingredients is clay.

Stock Department.

Preparing Cattle for Fattening.

That loss instead of gain results in many instances, from the process of feeding cattle for the butcher, especially by small farmers and those who do not make a regular practice of fattening beasts for sale, and consequently have not acquired the practical knowledge the regular feeder finds so necessary to ensure success in the process of fattening cattle, is but too true. Much of this is due to the want of good breeding, and an adaptability to feed well, in the beasts themselves, but more of it to the want of proper preparation of the animals before they are put up to fatten.

How often do we see a miserable half-starved bovine without a particle of flesh on its bones, but what muscles will hold its frame together, and having a hard unyielding skin covered with dirt and scurf, put up to be fed for the butcher on dry hay, to which a few roots and perhaps some grain is grudgingly added. Such a beast will take months of time and a large consumption of food to bring it up to the point at which the process of laying on fat will commence; or, if highly fed on corn meal or other rich food, will put on a layer of fat just under the skin, with scarcely any flesh between that and the bones, and so be worth but little more after feeding up, than it would fetch as a store beast. Then again there are thousands of beasts put up to feed for the butcher before they have attained an age at which they can be profitably fed. Such animals, though they may be made passable enough to suit the wants of the drover or low class butcher, can only be sold at a low price and attain but small weights, while, had they been kept on till they had attained their full growth, they might be made to vie with the best and command double or treble the price.

Cattle intended to be winter-fed for the butcher should have reached maturity as regards the development of their muscular and digestive systems. With common stock this is rarely the case till they are full five years old. In thrifty, well kept, grade Shorthorns, Herefords, or Devons, the animals will be ready to fatten at three years old, and then aquire fat readily on less food than common stock at double the age. Herein lies the great advantage of an admixture of thorough-bred blood into our herds, and it should be the aim of every farmer in the land to employ thorough-bred sires as much as possible.

To get the animals in a proper condition to be fed up, they must have the run of such good pasture in the summer and fall before being put up as will bring them into the stalls full of flesh well laid on at every valuable point. This done, the process of feeding in order to lay on fat at the right point, and in the proper manner, becomes both profitable and takes but a moderate length of time, and such an animal, well managed, will bring in much more per pound live weight than one of equal size fed in the ordinary way.

Breeding Cows for the Dairy.

So great is the demand, and so insufficient the supply, of really good milch cows, that it is a wonder that more attention is not paid to the matter of breeding them exclusively. The dairymen themselves cannot well raise their own calves, as they require all the milk of their cows for the manufacture of cheese; but they can at least do something towards the improvement of this class of stock, by using only first-class bulls of pure blood, either short-horn or Ayrshire, to run with their cows during the summer. This would greatly enhance their value when they are sold off in the fall, and those who purchased in order to keep till their calves were dropped and old enough to be fed by hand, would be more likely to raise and well care for the heifer calves, from the certainty that they would prove valuable as milkers in the future. Grade cows with a strong infusion of good blood in them, always command fair prices, and usually prove better milkers and better feeders, as well as finer and larger animals, than those of purely native stock. Two crosses of short-horn blood followed by a cross of Ayrshire make the most profitable dairy stock that can be had, without at the same time going to the heavy expense of keeping a herd of thorough-breds. If some of our best farmers, in those districts that are as yet not given to cheese-making, would go into the business of breeding cows for the dairy, we think they would find it exceedingly profitable.

If good grade heifers with one or two crosses of short-horn blood of a milking strain can be had, they would form a good foundation for a herd, and by using a short-horn bull to them and afterwards an Ayrshire bull to their progeny, animals could be obtained that would combine the large size and good feeding properties of the short-horn, to which the Ayrshire cross would add the adaptability for producing milk in quantity. The short-horn blood should be stuck to, giving a cross of Ayrshire only after two or three of the short-horns have been put in.

If large well-made heifers of native stock, from good milking dams, can be had, the use of the short-horn blood will soon bring their progeny into better size or form, and then a cross of Ayrshire might be added. It is now proved that the capability of a cow to secrete milk depends greatly upon her being a large feeder and good digester, and these qualities are best obtained by using short-horn blood to cross with. Large heavy cows are the best milk producers, though they may not

give the largest proportion of butter. The diminutive Channel Island cows or the Devon are undoubtedly the best butter producers, yet they are not as profitable for general dairying as the larger short-horn or Ayrshire grades. It must not be overlooked that large heavy cows can be made most out of as beef, when their best days as milkers are passed.

By a judicious course of breeding, taking care to feed well, so as to bring the young heifers early to maturity and ready for the pail at three years old, more money can be made than one would suppose. Such animals readily command any price in reason. We have seen some sold this fall at prices ranging from $100 to $160 each. The actual cost of breeding and keeping such animals till three years old would be but little more than that of raising native stock; the principal item being the purchase and keep of a pure-bred bull, of sufficiently good pedigree to impress the high qualities of his blood upon the stock to which he is used. He must be of undoubted purity of blood, and from a milking tribe; otherwise the effort to breed a high class of cows would result in failure.

The matter of breeding stock exclusively for the dairy is one well worthy of consideration, and we are inclined to think that those who would undertake to start and establish herds with that view, would find it not only profitable, but also feel a sense of pride and satisfaction in witnessing the success of their efforts to obtain a high name that would of itself bring buyers to their doors ready to pay such prices as only really good animals can or ought to command.

Working Milk Cows.

In reference to a question on this subject to which we have already briefly replied, we may add that we have never seen milking cows worked, and doubt there being any profit in doing so, and could not recommend our correspondent to try the experiment as one having a reasonable chance of success, even when taking into account the probably increased quantity and quality of the milk which may probably arise, provided extra grain food was given in great abundance.

A gentleman from the Isle of Wight, England, says that, many years since, and before he left home, he had often seen a miserly old farmer, who occupied, as tenant, a few acres of land, doing his farm work with a cow and a donkey harnessed together; and often, when ploughing with this most novel team, he had no other driver than his daughter, who was provided with a trace whereby she assisted in difficult or hard spots. Thousands have seen this curious exhibition of combined labour, and the daughter—an old maid of about 45—did not seem to feel any decided objection to do her part.

This family lived just opposite, and within two stones' throw of the cottage of the far-famed Dairyman's Daughter, whose life has so conspicuously figured in numberless tracts.

Almost all the members of this woman's family worked at intervals for our informant, and consequently he had many opportunities of seeing the above extraordinary team at work, but no good ever appeared to have resulted therefrom.

Stock Need the Best of Care Now.

We believe that, as a rule, stock receive the shabbiest treatment of the year during the late fall and early winter. And this is the very period when they should have the best care. Every farmer knows that it is "half the battle" to bring his stock through to steady foddering in good condition. If a flock of sheep comes to the barn in December, pinched and scrawny, it will leave the barn in the spring thinned in numbers, with wool loose and ready to be pulled off by the first bramble it touches, and thus depreciated more than the cost of its wintering. If the cows come to the stable and foddering, pinched and thin, by reason of frost-bitten pastures and heavy milking, the owner need not be surprised if half of them loose their calves or their lives during the winter. In fact, may not the treatment of the cows during the late fall and early winter, be one of the chief causes of the growing frequency of abortions in dairy districts? The dairyman is anxious to make his cows pay him all they will. He has good excuse for being greedy, we admit. Even the consumers of butter and cheese, who are accustomed to complain so loudly of the high prices of those articles, must acknowledge it, too, after reading the exhibit of their cost, made at the last meeting of the Central New York Farmers' Club. Yes, the dairyman is in no danger of getting suddenly rich, even if successful in getting the largest possible yield from his cows. But many of the devices that he resorts to, for compassing that end, are crying examples of mistaken economy. They are suggested by his greed rather than his good sense, and result too frequently, as measures adopted by greed generally do, in killing the hen that lays the golden egg. He thinks there is no need of foddering his cows until the pastures are covered with snow, and the shivering animals stand lowing about the barn. As long as they will roam over the pastures, picking at the frozen and innutritious tufts of grass, he thinks they are doing well enough. They shrink in their mess badly, but he feeds them with apples, or pumpkins, or leaves from his root crops, and they regain their usual flow of milk. Now they are certainly well enough. But he forgets that he is burning the candle at both ends; that he is trying to "eat his cake and keep it, too," though he is temporarily succeeding. When he comes to stable his cows for the winter they are lean and weak. Pretty soon, some of them begin to abort. He thinks they need heartier food. He gives them a little meal, in addition to his best hay; for he has now fed out all the "odds and ends"—the poor corn-fodder and the worst straw. But this sudden change in the diet only aggravates the difficulty. It makes his cows feverish, but not healthy and strong. Still more abort; or, if they escape this, and drop their calves alive, they fall victims to milk-fever, black-leg, pleuro-pneumonia, or some other of the many ills that badly treated cows become heirs to. He is perplexed. He can see no reason why his herd should be so afflicted; and he very philosophically concludes it is his "luck," when there is no "luck" about it; only carelessness and "mistaken economy."

Of course, we do not mean to assert that cows, with the best of care, will escape all diseases and mishaps; nor do we wish to put forth the theory that abortion is attributable only to improper feeding in the fall, or at any other time. But we do believe and assert that every farmer loses ten times as much as he gains by scrimping his cows during the last of the fall and the first of the winter, or by leaving them to shift for themselves. As soon as the cold rains of November come on, they should be stabled every night and given a light foddering of good hay or cornstalks every morning. Never should they be allowed to sleep out after snow begins falling, or left to the pickings of frozen pastures. Cabbage leaves, leaves of root crops, apples and pumpkins may be profitably fed, if other food is also given to sustain and build up the muscular system. But milk-secreting food, when given in excess, weakens the animal and often causes her serious injury.—*Utica Herald.*

On Pig Breeding and Feeding.

Some of the most prominent breeders of swine at the south-west had a discussion recently, at the meeting of the St. Louis Farmers' Club, on the subject of breeding and feeding swine. The qualities and adaptability of several different breeds were thoroughly discussed, and the general conclusion seemed to be that the Berkshire was in every way the most profitable breed, and the most to be depended on. Medium-sized animals seemed to obtain the preference. The Poland and Magie found many friends, but it was admitted that they were not yet sufficiently established to rank as a pure breed, and that a cross of the Berkshire, the Chester White, or any other kind of pig common to that section, upon them, produced a better and more profitable animal to feed than anything else that had yet been tried.

In answer to the question as to how the Berkshire itself in its purity had proved successful as a feeder, it was said that the breed had as yet been too valuable to use for crossing on other stock to be made into pork, but that some would be fed this fall to test the matter. Those that were now being fed were estimated by their owner to go seven hundred pounds each dressed. They give a larger weight for their size than any other breed. The crosses obtained by using Berkshire boars to sows of other breeds were remarkably thrifty, and easily kept. The Berkshires were admitted to be good breeders and excellent nurses, seldom if ever destroying their offspring, while the Essex were said to be very uncertain as breeders and nurses, and the other large breeds of the south-west were much given to destroying their young.

It was stated that corn should not be fed to young pigs, and that even fatting hogs did better upon a mixture of oats and corn, or several kinds of grain together, than on corn alone.

Scalding the feed seemed to be considered preferable to grinding it, and feeding often, not less than five times a day, better than giving the animal large quantities at a time.

One fact strongly in favour of the Berkshires came out, namely, that they were exempt from that scourge of pig-breeders of the West, hog cholera, as also were the Essex. These fixed breeds were said to have a higher vitality and better constitutions to resist unfavourable climatic influences than those of a less fixed type. Added to this, they were eminently a grazing breed, and will grow fat on clover alone, where a common pig would starve for want of grain or animal food. As one speaker said, "they did not know what grain was," to which an advocate of the Chester Whites replied, "Starve them to it."

The Selection of Breeding Stock.

is somewhat singular that, while the country abounds with well bred animals of every kind, horses, cattle, sheep and pigs, there is yet such a superabundance of wretched breeds to be met with in every direction. To a certain extent bad land accounts for a portion of this, inducing weediness even in animals of good blood, and whose form under more favourable conditions would be all that could be desired; the proof being that, when removed to kindlier pastures, if done before they become stunted, they rapidly fill up and become useful stock, healthier and hardier probably than others reared under more favourable conditions. Those who farm poor land are also more or less indifferent as to the necessity of procuring good blood, believing that the common breeds are hardier, and as in the case of milch cows give a greater return on poor pastures than better bred animals could possibly do. Bad land, however, does not account for all the poor stock to be met with; on the contrary, a considerable proportion of it comes from land of average quality, and which is quite capable of carrying animals of much greater weight and value than many of those that are found upon it. The great natural law that "like begets like" seems in such cases to be entirely overlooked, animals of both sexes continuing to be bred from that are totally unfit to be used for reproductive purposes. A farmer doing this betrays a want of attention and indifference to the furtherance of his own interests highly reprehensible, and if his stock is extensive he must in the long run suffer severely. Using male animals of mixed blood is a most prolific source of injury, and of course actual pecuniary loss, whether in the herd or flock. Deterioration may not be immediately noticeable, but when a certain point has been reached, improvement must stop; and in the progeny of cross-bred animals there must, and always will be, found a number of weaklings not worth the trouble of rearing.

Whatever the class or character of the dams, the continued use of sires of a distinct breed, capable of transmitting a family likeness, should constantly be persisted in; the man who does so finding his stock of various breeds of animals yearly increasing in value, the receipts correspondingly raised, and the occupants of his pastures, stables or stalls, wonderfully improved in appearance.

Whether they attend to it or not, we find most men admitting the influence of a well-bred sire on the character and quality of the future offspring; but, strange to say, comparatively little stress is laid upon the influence for good which is exerted by the dam on her young, when she herself is of good quality and well descended. When both parents are good, progress is rapid; and by holding over for breeders only the young of the best animals much time is saved, and the required amount of perfection is reached in a very limited number of years. Once looked to, this point will ever after be considered one of the most vital importance, and will on no account whatever be neglected or overlooked. To any one conversant with stock in large numbers, the influence of the mother is strikingly apparent in certain members of each class, their produce year after year exceeding in value that of every other animal of the same kind, and when sold brings proportionately more money. Thus, for instance, a cow will sometimes breed calves for a succession of years exactly the same colour, form and general character, no matter if the sire is changed each year; and her progeny again will transmit to their own offspring the same characteristics, but in an improved degree, if the necessary measures have been attended to with this view. Families are thus founded, and men intelligent enough to profit by improving a good strain which have come in their way—it may be quite accidentally in the first instance—have gained for themselves a name and acquired fortunes. To breed from females which have proved themselves indifferent nurses, and whose progeny, however handsome they themselves may be, are always amongst the culls of the flock or herd, is very short-sighted policy, and detracts very materially from the prosperity of those who will not take the trouble of marking all such animals, and getting rid of them on the first favourable opportunity. Hardiness, by which general term a great deal of meaning is expressed, should never be lost sight of by the breeder, but on the contrary carefully attended to, as it is a quality of the utmost consequence, enabling them to withstand the vicissitudes of the weather, to keep up condition at periods when the greatest foresight cannot prevent a scarcity of food, to be always in good health, and to be able to breed animals of sound, healthy and hardy constitutions.—*Mark Lane Express.*

Weaning Pigs

Some farmers wean the pigs a few hours after birth, and turn the sow at once to the boar. The best mode, however, is to turn the boar into the hog-yard about a week after parturition, at which time the sow should be removed a few hours daily from her young. It does not injure either the sow or her pigs, if she takes the boar while suckling; but some sows will not do so until the drying of their milk.

The age at which pigs may be weaned to the greatest advantage, is when they are about eight or ten weeks old; many, however, wean them as early as six weeks, but they seldom turn out as well. They should not be taken from the sow at once, but gradually weaned. At first they should be removed from her a certain number of hours each day, and accustomed to be impelled by hunger to eat from the trough; then they may be turned out for an hour without her, and afterwards shut up, while she also is turned out by herself. Subsequently, they must only be allowed to suck a certain number of times in the twenty-four hours; perhaps six times at first, then four, three, and at last only once; and meanwhile they must be proportionately better and more plentifully fed, and the mother's diet in a like manner diminished. Some advise that the whole litter should be weaned at once; this is best, unless one or two of the pigs are much weaker and smaller than the others; in such case, if the sow remains in tolerable condition, the feeble ones might be suffered to suck for a week longer; but this should be the exception, and not the general rule.

Pigs are more easily weaned than almost any other animal, because they learn to feed sooner; but attention must, nevertheless, be paid to them, if they are to grow up strong healthy animals. Their styes must be warm, dry, clean, well-ventilated, and weather-tight. They should have the run of a grass meadow or enclosure for an hour or two every fine day in spring and summer, or be turned into the farm-yard among the cattle in the winter, as fresh air and exercise tend to prevent them from becoming rickety and crooked in the legs.

The most nutritious and succulent food that circumstances will permit should be furnished them. Newly-weaned pigs require five or six meals in the twenty-four hours.—In about ten days one may be omitted; in another week, a second; and then they should do with three regular meals each day A little sulphur mingled with the food, or a small quantity of Epsom or Glauber saults dissolved in the water, will frequently prove beneficial. A plentiful supply of clear, cold water should always be within their reach; the food left in the trough after the animals have finished eating, should be removed, and the trough thoroughly rinsed out before any more is put into it. Strict attention should also be paid to cleanliness. The boars and sows should be kept apart from the period of weaning.—*National Live Stock Journal.*

Canadian Horses for the Cavalry.

To those who are fond of sneering at our Canadian breed of horses (and of whom there are not a few in Canada), the following public testimony, borne by a man whom the *Mark Lane Express* styles "one who has evidently much experience of the countries of which he speaks" may be some answer:—"As regards the merits of the horses as troopers, in the year 1842 I saw a considerable number of these animals that came home in the 1st Dragoon Guards and the 7th Hussars from Canada. I rode a great many of them, and I say unhesitatingly that they were the best troop horses I ever rode in England—up to great weight, very shapely, and fine free goers, with splendid action. They were bought for about £25 each."

The Value of Straw as Fodder.

In the remarks we have made regarding the value of dry corn fodder, it was stated that it has been put in mows with wheat straw in our barns, and that the straw and corn "butts" have been consumed together by our herd of cows, causing a copious and well-sustained flow of milk during the winter months. These remarks have led to many inquiries from our farmer readers with regard to the nutritive value of wheat and other kinds of straw. It is certain that straw has been under-estimated in this country by grain-raisers, and that a source of profit has been to a considerable extent lost from this circumstance. One hundred parts of wheat straw, as produced under ordinary conditions in this country, contain:—

Water	13.33
Oil, etc	1.74
Albumen, etc	1.28
Sugar, mucilage, extractive matters, etc	4.26
	19.40
Digestible fibre	1.13
Soluble inorganic matter	1.65
Insoluble proteine compounds	54.13
Woody fibre	3.08
Insoluble inorganic matter	
	100.00

It will be seen that wheat straw contains about 30 per cent. of assimilable food, or food capable of nourishing animals. It contains as much albumen and proteine compounds as the ordinary run of hay. Woody fibre is, however, largely in excess, and there is a far less quantity of sugar, mucilage, etc., than in the hay of our meadows. The kind of straw which approaches nearest to good upland hay is oat straw cut before it is ripe. The order in which the different kinds of straw stand relatively, as regards nutritive value, may be presented thus:—

Oat straw,
Barley straw,
Wheat straw,
Rye straw.

Unquestionably it will be for the interest of farmers in most sections to diminish the amount of straw used for litter and increase its use for fodder. In many of the Northern States rye straw is of equal value with the best quality of timothy, as it is used largely for bedding horses in towns and cities. Of course, where straw commands such high prices, and is of such ready sale, it would be absued to feed it to animals.

We must not be understood in these remarks as holding to the view that any kind of straw can supersede the use of good hay and grain, but rather that it contains a sufficient amount of the elements of nutrition to make it a valuable substitute for these usually more costly products.—*Boston Journal of Chemistry.*

Captain Gunter, says *Bell's Weekly Messenger*, has suffered a great loss in the death of a young bull, Fourth Duke of Wetherby, by Third Duke of Wharfdale, from Duchess 92, the beautiful cow which Mr. M. H. Cochrane vainly tried to buy for 2000 guineas.

Mr. Brucre has sold to Mr. Cochrane, for 500 guineas, the Shorthorn cow Star Queen. She was at the time of sale in calf to Sir Windsor Broughton (27507), the son of Prince of the Realm (22627) and Windsor's Queen by Windsor (14013).

Several thorough-bred cattle of the Durham, Devon, and Ayrshire breeds, as well as other live stock, were purchased at the late Provincial Exhibition for Nova Scotia, under authority of the Agricultural Bureau of that Province.

Musty Oats.—A South Carolina correspondent of the *Farmer and Artizan*, after reporting the loss of a horse, supposed to result from eating musty oats, says: "I am certain more horses die in the South from eating damaged oats than from all other causes. As the oats are cut rather green, and often with many green weeds among them, it is very difficult to keep them from moulding, more or less in the centre. Many animals die from this cause, which are supposed to have had blind staggers, as in the case of mine. Another horse recently died near me in the same way, after being fed on oats mostly sound, but some of the bundles musty in the middle."

The raising of Cashmere goats for their wool has become an established pursuit in Nebraska. One gentleman has a flock of 200, and his success in raising them has induced many others to adopt the breeding of that valuable stock as a regular pursuit.

Death of Cattle by Smut.—A correspondent of the Black Earth (Wis.) *Advertiser* says:—"For the benefit of those who avail themselves of the usual benefits of corn fodder as feed for stock, I wish to state through your paper, that Mr. Timothy Lee, of Dazomanie, lost by death, on the 12th instant, one cow and two heifers from a cause that at first appeared quite mysterious, but on examination of the stomach, smut and corn were found in such an abundance that it was no longer a mystery, and the conclusion was that they died from the effects of a poison generally known as corn smut. The smut was eaten on the hill where the corn had been husked, except such ears as contained that excrescence which Mr. Lee considered worthless and harmless."

Variety of Food for Hogs.—In an experiment detailed in *Deitz's Farm Journal*, where hogs were fed on cooked potatoes and oats, by the iodine test, the excrement showed that a large portion of starch was passing off undigested. By the addition of a small amount of peas to the feed, the iodine test showed that all the starch was appropriated to the animal economy. Experience has demonstrated that a variety of food is essential to the perfect development of animals. When hogs are fed for any length of time on the same food they become "glutted," and the addition of even a single article of food to what they have been accustomed to, shows a marked improvement. If they are fed on corn they should have pumpkins or potatoes; access to grass should be allowed them when they do not have a variety of food.

Cut Feed for Horses.—An accurate farmer has furnished the *Country Gentleman* a statement of his experiments with feeding cut feed and meal to his horses, accompanied with weighing and measuring. He cuts oat straw about an inch long with a raw-hide cylinder machine, and this chopped straw is then treated with corn meal bran, and mixed in about equal quantities as to weight, so that each horse has about a bushel of cut feed, and three quarts of the meal and bran, twice in each day. Sometimes hay is cut instead of oat straw, or both are mixed. It is found that 200 lbs. per week of this mixture of corn meal and bran, added to the cut feed, will keep a pair of working horses in the best condition. This, he is satisfied from experiment, *is less than two-thirds the cost of keeping them on uncut dry hay and whole grain.* The corn meal alone is not so good for horses as when diluted with bran. An excellent meal is made of ground oats. The fodder is cut by horse power on stormy or spare days, and stored in large bins, so as to furnish always a surplus on hand.

Veterinary Department.

Castration in Horses.

We are frequently asked the question what is the safest time to perform the operation of castration. As to the season, there is a considerable difference of opinion, but from our own experience we prefer the months of May or June, and consider that the operation is most successful in yearlings. There are various methods of performing the operation. In olden times the function of the testicle was destroyed by pressure, or by removing part of the seminal duct (*vas deferens*), and also by the barbarous practice of tearing out the glands. These methods, however, have been long abandoned, and the operation is now usually performed in a more surgical and scientific manner.

The common methods of performing castration on this continent are by compression either with or without caustic; by cauterization or the firing iron; by ligature; and by torsion. In aged horses, before operating, it is advisable to prepare the subject by feeding for a day or two on bran mashes, and giving very little bulky food. By having the bowels comparatively empty there is less danger in throwing the horse and securing him, and in all cases, immediately before operating, the scrotum should be carefully examined with the view of detecting hernia or rupture, because, if hernia existed, and an incision were made through the serous coat of the testicle (*tunica vaginalis*), the imprisoned bowel would at once protrude, and might defy all efforts to return it.

After examination for hernia, the horse should be thrown and secured upon his back, with the hind legs pulled forward, and firmly attached. It is advisable to secure him firmly, as by doing so it will prevent struggling, and at the same time the operation can be more easily performed. The testicle should then be taken hold of with the left hand, and an incision made through the scrotum parallel with its division or *raphe*, exposing the testicle, which must be drawn carefully out for a little distance; but on no account use any violence. If the caustic clams are to be used, the *cremaster* muscle should be detached, and the clam placed upon the cord and firmly secured. The testicle may then be removed, and in the course of thirty-six hours thereafter the clams may also be taken off. The grooves in the clams are usually filled with a caustic paste formed of corrosive sublimate, fleur and water. Compression alone will have the desired effect, but the vascular communication is destroyed more rapidly with the aid of the caustic.

In Britain the operation is usually performed with the aid of the firing iron. An incision is made through the scrotum, and the testicle pulled out, and a large temporary clam applied around the cord; the testicle is removed, either with the knife or iron. We prefer the former. The end of the spermatic artery is seared by the cautery, the clams are removed, and the operation is over.

When the ligature is used, the operation is performed in the same manner as by the iron, with the exception that the end of the spermatic artery is taken hold of with a pair of forceps, and a ligature is applied and then the clams removed. Of these three methods of operating we prefer the cautery or firing iron.

Obscure Lameness in Horses.

Most horsemen have at some time or other experienced the annoyance of having a journey interrupted by the sudden occurrence of lameness in an animal which, up to the time, had done good service without showing any signs of unsoundness. Not less annoying than the accident itself is the mystery which attends the cause of defective action. The horse may be as lame as if he had broken his leg, but no signs of injury are apparent; and under the circumstances all sorts of gloomy speculations are indulged in by the owner. The animal must have been unsound before, and the disease is now becoming manifest. This idea naturally occurs to the mind if the horse has not been long in the owner's possession, and the one solitary gleam of comfort which he feels under the disagreeable circumstances of his position is associated with his determination to return the brute at the earliest opportunity. If the horse is an old servant, and there is no chance of falling back upon an unsoundness of long standing, the rider concludes that something has given way, perhaps in the foot or the shoulder, or, if the hind leg is affected, that a joint has slipped. It is consoling to reflect that none of these serious evils is usually present in the instances of sudden attacks of severe lameness to which we have alluded.

Extensive injury to important structures does sometimes occur without an apparently adequate cause, and we have several times referred to such injuries as compound fractures of bones of the extremities from the concussion resulting from unconscious movements, fractures of the bones of the back and ruptures of muscles during violent efforts to rise from the ground, sprain and even rupture of tendon and ligament during rapid movements; but in all these cases the nature of the mischief is in some degree apparent. The injured part is tender to the touch, heat and swelling soon appear, and there is seldom much difficulty in deciding at once as to the seat of the disease. Lameness, equally as severe as that which arises from sprain of tendon or muscle, often happens independently of these injuries; and to such cases the term "obscure lameness" is fairly applicable. Now and then the recovery from the lameness is as sudden as the attack. This fact was particularly well exemplified some time ago in the case of a gray pony, which, while being quietly ridden along a level road at a foot pace, became all at once so lame that the rider dismounted and examined the limb—the near fore one—in expectation of finding some severe injury in the shape of fracture or dislocation. Nothing, however, could be discovered at the time to explain the lameness. The pony was, with much difficulty, taken to a forge about a quarter of a mile distant, and the shoe was removed. No injury, however, was detected in the foot, and a second careful examination of the limb did not lead to the detection of the slightest sign of tenderness, heat, or swelling in any part. Treatment was of course out of the question, as no disease was apparent; and the animal was therefore left to his fate till the next day, when, if we remember correctly, he was found to be sound, or nearly so; at any rate, he was at work again in a day or two after the occurrence which has just been narrated.

Sudden and severe lameness often arises without the action even of those common causes which are in operation while an animal is at work, such as concussion, sprain, treading on stones or other projecting bodies. A horse may be left in the stable at night in good health, and in the morning may be found incapable of moving over in the box or stall. In such cases the hind extremities are most commonly affected, a circumstance which is suggestive of the nature of the accident that caused the lameness. When a horse is made to rise suddenly from the recumbent position, it is very common for one hind leg to slip backward for some distance, in consequence of the foot missing its hold upon the floor of the stable. Perhaps in ninety-nine cases out of every hundred no harm results, the animal gets up and moves with his usual freedom; but in the hundredth instance sprain of muscle or ligament is caused, and the horse is suddenly reduced to an almost helpless state from an injury which, unless the accident was observed, can only be surmised to have occurred.

From the position of the structures which are affected, the immense mass of muscle which exists in the hindquarters, and the depth at which the joints are placed, it is nearly impossible to effectively manipulate the parts, and it is only by careful observation of the animal's action, and his behaviour while the parts are being examined, that any opinion of the situation of the injury can be formed.

In reasoning upon the probable causes of those obscure cases of lameness which are unaccompanied by distinctive symptoms, we constantly ignore the very valuable teachings of our own experience in reference to accidents which happen to ourselves or to our

neighbours. A man steps freely off his own doorstep in the morning, and, without any warning, finds his ankle suddenly twisted on one side. For a few minutes he suffers intense pain, and, if he moves at all, his action is of a character which in a horse would be called "dead lame." After a time the intense pain subsides, but for some hours, perhaps for some days, the individual limps a little even in the accustomed walk; a run he dares not dream of attempting. In comparing defective action in horses with the same or similar condition in men, it must be remembered that the lameness which is shown in the walk must be very severe indeed in a horse; and lame men never as a rule try a trot, not being impelled thereto by the sound of a whip in the rear. In these accidents occurring to men, there is often considerable difficulty in detecting symptoms of injury; the painful ankle is perhaps not very susceptible to the influence of pressure; the most careful inspection fails to discover the slightest signs of inflammation, and the surgeon, if left to his own resources, would often be as much puzzled as the veterinarian; but, as it is, the human patient settles the whole difficulty at once by the use of his tongue, doing with a word more than the horse can do by his action at various paces performed under compulsion, and at the cost of considerable suffering to himself.

A vivid recollection of the numerous trifling accidents which cause temporary lameness in ourselves would often assist our conclusions when we are seeking to detect the cause of sudden and obscure lameness in horses; and there is no doubt that in many cases we should hit upon a solution of the mystery, notwithstanding the absence of definite evidence. Horses are in the habit—some of them regularly—of striking one leg with the opposite hoof, and many sudden attacks of temporary lameness are due to this cause; an accidental change in the position of the legs during progression may expose a sensitive part of a limb to a blow from the hoof or shoe of the opposite leg. Over the most prominent part of the fetlock-joint a large sentient nerve passes, and a slight bruise on this part would cause intense pain without leaving any marks of the accident.

Sudden slips may occur while the horse is going, and considerable pain may be thus inflicted, although nothing of an unusual kind may have been noticed in the horse's movements.

Violent concussion may affect the structures of the foot, or some of the joints, fetlocks or hocks, for example, without producing any external derangement at the time, and probably not at any subsequent period of the duration of lameness. Cases have recently occurred of horses becoming suddenly lame, and remaining lame for weeks, without at any time showing symptoms of active disease.

Treatment of obscure lameness, in the first instance, should be merely expectant in its character, the object being to wait for development of symptoms: with this view, the common practice is to give a dose of physic, lessen the quantity of food, and put the animal in a loose box for a day or two. By the time the purgative has ceased to act the animal may be sound again, or so far improved as to justify a continuance of the rest for a few days longer. If the lameness continues, or becomes more severe than it was at first, it is obvious that something more than a slight injury or temporary derangement exists, and the nature of the mischief must be ascertained before any further treatment is attempted; and it is far better to take advantage of the highest professional skill and experience that can be obtained than to grope in the dark, and perhaps lose a valuable animal that might have been saved by timely care.

Carrots for Horses

To the Editor.

Sir,—I grew a large quantity of carrots the present season for the purpose of feeding my horses with them. A day or two ago, however, I was told that they were unwholesome for horses if fed to them regularly as a substitute for grain, and that they should only be given occasionally. I have also been feeding them turnips. I have long believed both carrots and turnips good for horses when moderately, though regularly, fed to them with hay. Will you please enlighten me on the subject?

HORSEMAN.

Reply—Carrots, when given in moderate quantities, once or twice a day, along with an allowance of grain, are found beneficial, principally by assisting the proper digestion of more nutritious food. We have known horses, not doing heavy work, kept in good condition on carrots and hay; but if the roots are given in large quantities to horses that are working hard, they would be deficient in nutriment and might have an injurious effect.

Rheumatism in Sheep

This disease consists in a peculiar inflammation of the muscles of the body, very frequently causing considerable pain when they are called into action. It is usually caused by exposure to cold, and sometimes shifts from one foot to another, occasionally degenerating into a slow or chronic form, and attacking the sinews, ligaments and joints, as well as the muscles. The neck and loins are the parts most frequently attacked, either separately or combined. The former affection causes the head to be crossed in a bent position, and the latter produces considerable stiffness and weakness of the loins.

The treatment should consist in removing the animal to a comfortable place, giving an active purgative, such as two ounces of epsom salts dissolved in warm water, with a drachm of ginger and half an ounce of spirits of nitrous ether. A stimulant, such as hartshorn and oil, or opodeldoc, should be well rubbed over the affected part; and if the disease assumes a chronic form, a seton should be inserted near the part.

The Dairy.

Winter Treatment of Milch Cows.

The great increase in the manufacture and consumption of cheese within the past few years renders dairy farming a more certain and profitable branch of husbandry than grain-growing, especially in those sections where grass and water are sufficiently abundant, and the soil adapted to carry pasturage of a high quality. But the man who keeps a number of cows through the summer for the sake of the profit to be made out of their milk rarely raises enough of hay and roots to enable him to keep them over the winter, and as a consequence sells off the larger portion as soon as the cheesemaking season ends, replacing them by others when grass again comes in. Most of these cows sold off in this manner, in autumn, are bought up at low prices by farmers who have a surplus stock of hay and roots to feed out, and who expect to make a profit in three ways out of their investment; namely, first, by making manure for their farms; second, by the sale of the calves obtained from the cows; and lastly, by the increased value of the cows themselves, when ready in spring to be again resold to the dairymen.

Now, if the cows are well fed and taken care of, their increased value in spring would alone amply repay the cost of keep, added to which they would produce more and richer manure, and their calves, being strong, healthy, and full of flesh, would command a high price from the butcher, and if heifers got by a thoroughbred bull, would be of much greater value to raise and afterwards sell to the dairymen.

We are not advocates of the practice of keeping cows that are to calve in spring at the milk-pail during the previous winter. Our own experience has taught us that the small amount of butter to be obtained at great trouble and cost from such cows during the winter season, even though it bring a high price, is the most unprofitable production of the farm.

What is gained by making butter in winter for sale is more than lost by the increased cost of keep and loss of strength and condition of the cow. Her food ought rather to go towards developing the calf, and if she is not made to bear the additional strain upon her of giving milk at the same time, a moderate amount of food will keep her in thrifty and healthy condition. The aim should be to keep all the milch cows through the winter well housed, and so fed that they come out in spring at calving time fleshy but not fat, and with clean smooth hides, free from lice or scurf.

The brush and comb should be freely used, and the animals kept warm and clean, with plenty of straw to lie on.

The wintering of cows in the straw yard, as too often practised in Canada, is a most barbarous custom, and a mistaken economy, generally resulting not only in suffering to the animals, but also in direct loss to the farmer, as his profits, if any, are not to be compared with what he can obtain by liberal feeding and treatment.

No good farmer will keep more stock than he can find abundance of food, shelter and care for, and he who does will usually suffer loss. Generous keep and care are always well repaid, both in the increased value of the animals and the manure obtained from them, as well as a feeling of pride and satisfaction to the farmer at seeing his animals always thrifty and healthy.

Good hay, with a large admixture of clover in it, and the addition of half a bushel of roots per day, is the best feed for cows in winter. If roots are not to be had they should get a mess of cut straw and chopped rye or peas, mixed together and steamed or boiled. This may be allowed to stand till slightly fermented before using. The cows should have a feed of them at least every other day. We do not think exclusive feeding on soft or cooked feed is advisable, as it has a tendency to soften their gums and cause them to suffer a loss of teeth, especially in those that are past their prime as regards age.

Winter Dairying.

When a farmer resides near enough to a city or town to make it profitable to keep cows in milk through the winter season, and has the proper facilities for doing so, he should endeavour to make it a point to have only good cows and feed them well.

The mode of feeding to be adopted will in a great measure depend on whether it is designed to sell the milk, or to sell the butter produced from it only. In the former case the main object is to obtain a large flow of milk without regard to its richness. To do this, the cows need to be fed to a large extent upon food containing a considerable proportion of liquid elements, to which bran must form the chief addition. The hay or straw used should be cut and pulped with turnips or beets or mangels. The usual proportion of bran in this case is four pounds per cow each day, given at night.

If the pulped mixture can be fermented before feeding to the cows, they will give a larger yield of milk, with no taste of the turnip, than if fed unfermented. If the roots can be cleaned or boiled they will be still better and go further.

Where butter making is an object, roots are to be avoided, and good sweet hay given, with the addition of three pounds per day of pea, oat, or barley meal to each cow, given raw, or if the hay is cut, which is better, the cut hay should be moistened with water, and the meal mixed into it. Unless some food rich in nitrogen is given to milch cows, it is but a troublesome and unprofitable undertaking to attempt to make good butter from their milk during the winter season.

Cheese Factories in Europe.

The factory system of cheese-making is steadily progressing abroad, not only in Great Britain, but also in other European countries. A recent article in the London *Field* states that up to the date of October 10th one hundred tons of cheese had been made at the two factories established in Derbyshire, and twenty-two tons had been sold at an average of over 80 shillings per cwt. The article says, in continuation:—

"From what we can gather, only a very few of the prime farm dairies have touched that figure. One point worthy of being recorded is the fact that in the whole make of the two factories there has not been one cracked or unsaleable cheese. A day or two after the Derby factory was opened, an experienced farmer and cheesemaker, on looking at the first day's make, remarked that he would like to bring his glass and pipe, and sit quietly and see that cheese tumble to pieces, pointing to one rather larger than the rest. That same cheese was sent to London on the 9th of September, and our friend might have been still enjoying his pipe and glass, without seeing any outward change in its appearance. The factory system may be slow in taking root on English soil, but that it will eventually do so, to the exclusion of all others, is highly probable. Once fairly established, the farmer will as soon think of returning to the flail and the reaping hook, or the pillion and panniers, as of returning to make cheese in the farm kitchen."

The writer proceeds to state that a Russian gentleman has lately visited these factories, and spent six weeks in familiarizing himself with their operation. He has taken back with him to Russia all the necessary plans, and will commence operations there on the American system next spring. Another, from Denmark, is now investigating the subject, with the prospect of doing the same thing in that country.

Right and Wrong Way to Milk.

The *Irish Farmers' Gazette* publishes the following from Prof. Dick, of the Edinburgh Veterinary College, on the manner of milking:—

"The operation of milking is performed differently in various parts of the country. In some the dairy-maid dips her hand into a little milk, and by successively stripping the teat between her fingers and thumb unloads the udder. This plan, however, is attended with the disadvantage of irritating more or less the teat, and rendering it liable to cracks and chops, which are followed by inflammation extending to the rest of the quarter. This accounts for the disease occurring more frequently among the cows under the charge of one milker than it does in those under the charge of another; and as this practice is more common in some parts of the country than in others, it also accounts for the disease being more common in these parts. This plan of milking, where the irritation is not sufficient to excite the extent of inflammation to which I have allnded, frequently produces a horny thickening of the teat, a consequence of the cracks and chops which renders it more difficult to milk than when in its natural state, and, at the same time, predisposes to inflammation when any cause occurs to set it up.

These effects may be, and are, almost entirely avoided, by the most scientific plan of milking adopted in other parts of the country, where, instead of drawing down or stripping the teat between the thumb and fingers, as I have stated, the dairy-maid follows more closely the principles which instinct has taught the calf. She first takes a slight hold of the teats with her hand, by which she merely encircles it, then lifts her hand up so as to press the body of the udder upwards, by which the milk escapes into the teat; or if, as is generally the case when some hours have elapsed between milking-times, the teat is full, she grasps the teat close to its origin with her thumb and forefinger, so as to prevent the milk which is in the teat from escaping upwards; then, making the rest of the fingers to close from above downwards in succession, forces out what milk may be contained in the teat through the opening of it. The hand is again pressed up and closed as before, and the milk drawn easily and freely, without the tugging and wrenching inflicted by clumsy milkers."

Blankets on Milk Cans.

Mr. Gardner B. Weeks, of New York, has addressed a communication to the Massachusetts *Ploughman*, condemning the practice, which has been advocated by some, of covering milk cans that are to be taken to the factory with thick woollen blankets or buffalo robes, with a view of keeping out the heat of the sun. In his article he says:—

"That the cans should be protected from the sun's rays, I admit; but it should be done in the way of a raised awning, or other appliance lifted above the cans. If a thick blanket or robe be laid directly over a can of milk from which the animal or natural heat has never been removed, and the milk then drawn any considerable distance to the factory, it will ordinarily so far injure the milk that it will sour in a few hours.

"I have had just this experience the present season at my creamery. Milk brought from a farm three miles distant from the factory caused trouble to the cheesemaker day after day by souring prematurely. On in-

quiry I found that the driver of the milk team had lately adopted the habit of throwing a buffalo robe over his cans as a protection from the sunshine. As a consequence, this milk soured before morning, and soured all the milk in the vat into which it was put; this, too, notwithstanding a large stream of cold water—52 degrees—was passing around the vat all night. On directing the removal of the robe as a covering, the trouble ceased at once, and has not recurred. This quite accords with similar experience which I have had in years before.

"In the cold part of the season, even in frosty weather, when milk is drawn but once daily, I have had the night's milk very much injured, sometimes quite soured, because the dairyman had placed the can cover closely upon the warm milk, and then set the can in a closed room or shed where the cool night air could not strike it. The can should have been placed under cover to keep out rain, etc., but in an airy place, and the cover should not have been put on at all.

"Whether there is, or is not, as much importance attaching to the "odour" question respecting freshly drawn milk as some contend, it is clear to my mind that milk must have access to pure air in order that it may be kept in good condition, even for a few hours.

"Frequent stirring of the milk in the can with the dipper, while the milking is being done, and up to the time the cans start for the factory, will do much towards reducing the temperature by aerifying the mass of milk.

"If milk is in any way thoroughly cooled —say to 60 or 65 degrees—then by all means let the advice of your correspondent be followed and the milk covered. In default of this cooling, let the can be protected by a raised awning which will allow free play to the wind. If neither can nor will be done, let the can go without any protection other than the usual tin cover."

The Largest Dairy in the World.

In his notes on the Pacific coast, Mr. X. A. Willard, of the *Rural New Yorker*, gives an account of what he calls "the largest butter dairy in the world." It is situated at Point Reyes, in Marion county, California. The ranch has a coast range of fifty miles, and contains seventy-five thousand acres. He states that about 3,000 cows are in milk on the estate, and they are divided up into twenty-one dairies, averaging about one hundred and fifty cows to each. The proprietors commenced improving their stock about the year 1858, by crossing common Eastern cows with two thorough-bred Shorthorn bulls of good milking family, brought from Vermont at a cost of $10,000. One of the Vermont bulls was an exceedingly fine one, and his stock proved to be excellent milkers. A year or two after, twenty-two head of Devon cattle were purchased and introduced among the herds. This breed did not prove satisfactory, and it was discarded, and in 1865 they commenced again with Shorthorns, raising annually one-fifth of the calves from the best cows. In this way the stock has been improved so that a good flow of milk is obtained.

After remarking that the ranch at Point Reyes was broken up into numerous hills and valleys, some of the hills almost approaching the dignity of mountains, Mr. Willard mentions the following to show that the size of the stock may be influenced by the surface of the country. He says: "This uneven surface, requiring climbing of hills and descent into valleys in quest of food, has had a strongly marked influence on the size and form of the stock. The animals are quite small for Shorthorns, and apparently more active than is usual with that breed, showing, in a very marked degree, what a controlling influence the surface of a country has in moulding the form of animals. The stock we found universally in fine condition as to flesh, and in every respect appeared to be in vigorous health; but the smallness in size was a point of interest to us, as showing how animals bred for several generations in a hilly country gradually adapt themselves to the surface over which they are compelled to travel in quest of food."—*Newport (Vt.) Express.*

Roots for Milch Cows.

In a recent number of the *Mark Lane Express* we find a statement from an English writer on the comparative value of mangels, carrots and turnips, for the production of milk. He regards both the carrot and mangel as inferior to the turnip, when quality of milk is sought—that is, milk abounding in cream. He says:—

"Although mangel-wurzel enables cows to give a large supply of milk, it is of a poorer quality than when they are turnip-fed, and not nearly so productive of cream. The butter made from it has also a slightly acrid taste, not so powerful as that of turnips, perhaps, but much more difficult wholly to remove or even to obviate to a passable degree. The thinness of the milk, when wholly mangel-fed, and this unpleasant taste, make it imperative to feed with bran, grains, crushed oorn, or a portion of cake, during the whole time this root is being used with milch cows.

"Farm horses eat it with great apparent relish, and thrive well upon it; and by its use a moderate saving in oats can be effected. When grated and mixed with chopped hay, a very agreeable and appetizing mess is formed, both filling and nourishing, and highly conducive to the health of the animals. If grating is objected to on the score of extra trouble, the whole roots thrown into the feeding box with the cut hay do almost equally well, the saliva of the horse and abundant sap of the root itself moistening the chaff abundantly.

"In giving carrots to milch cows, the only recommendation they have is the absence of all unpleasant taste in the butter, as the milk is neither so abundant in quantity nor so rich in quality as that obtained in turnip feeding."

He remarks further that, some years ago, a series of experiments was instituted with different roots, the whole extending over a period of about four months, and the conclusion arrived at, after such a lengthened trial, was exactly that which is here recorded. But as a feed for farm horses they are recommended, as they save corn and give a fine gloss to the skin, besides keeping the animals in good condition. From 14 to 21 pounds in a single feed are a liberal allowance; anything over that being apt to affect the kidneys and induce excessive staling.

We understand that X. A. Willard has an engagement to deliver a series of lectures at Cornell University, this winter, on dairy farming.

Milch cows should be kept in good, not fat condition, and a few weeks before calving should be scrimped in their food. This especially with good milkers. By lessening the amount of blood in the cow there will be less milk secreted, and less straining or inflammation of the bag. The milk fever may thust o a great extent be avoided.

Keep Milking.—The practice of milking but once each day, says *Hearth and Home*, where cows give but little, late in the year, is a bad one. They shrink much faster, and if young, the habit of not "holding out" is formed, to the owner's subsequent cost. They should be milked, as long as they are milked at all, twice each day.

X. A. Willard gives it as his opiniou that hundreds of thousands of pounds of cheese have been lost during the last summer by the lack of attention to the temperature of curing rooms. He believes progress has been made during the past few years in this department, but much remains to be accomplished, and the principal improvement must lie in securing a proper and uniform temperature o the cheese while curing.

Colouring Butter and Cheese.—This was the subject of a paper recently read by Hon. H. Lewis, before the Little Falls Farmers' Club, and of a discussion which as usual followed the opening paper. Mr. Lewis was strongly opposed to the use of any artificial colouring, and presented a report by Professor Caldwell, showing that several samples of annatto submitted to him for analysis contained poisonous matter, chiefly salts of copper. Mr. Willard contended that pure annatto was not injurious, and that the fancy of consumers required the addition of some colouring adjunct, and justified its use by the manufacturer. A new article, under the name of anattoine, was now being introduced, which he believed to be perfectly harmless.

Entomology.

The Grape-vine Flea-beetle.

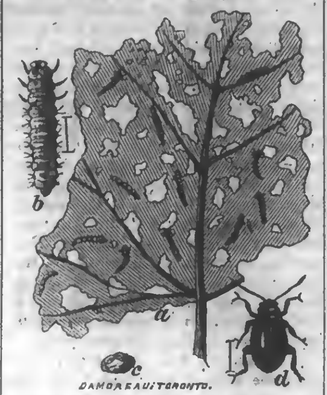
(*Haltica chalybea*, Illiger.)

Is there a grape-grower in the United States who does not know, to his sorrow, what the Grape-vine Flea-beetle is? Hardly one! And yet how few ever connect it with its disgusting little shiny brown larvæ, which generally prove still more injurious than the beetle, by riddling the leaves in the middle of summer.

The Grape-vine Flea-beetle often goes by the cognomon of "Steel-blue Beetle," and is even dubbed "Thrips" by some vineyardists. The latter term, as most of our readers are well aware, is entirely inapplicable.* The former name is not sufficiently characteristic, because the colour varies from steel-blue to metallic-green and purple, and because there are many other flea-beetles to which it would equally apply.

The Grape-vine Flea-beetle is found in all parts of the United States and in the Canadas, and it habitually feeds on the Alder (*Alnus serrulata*), as well as upon the wild and cultivated Grape-vine. Its depredations seem first to have been noticed in 1831, by Judge Darling, of Connecticut, and in 1834 Mr. David Thomas, of New York, published an account of it in the 26th volume of Silliman's *American Journal of Science*. Its transformations were, however, unknown till some time after Dr. Harris wrote his excellent work on Injurious Insects, and no figure of the larvæ has been hitherto published.

The beetles hibernate in a torpid state under any shelter which is afforded them in the vineyard, such as the loose bark and crevices of stakes, etc., etc., and they are roused to activity quite early in the spring. The greatest damage is done by them at this early season, for they often bore into and scoop out the unopened bud, and thus blight the grape-grower's bright expectations. As the leaves expand, the little jumping rascals feed on the leaves, and soon pair and deposit their small orange eggs in clusters, very much as in the case of the colorado potato beetle. These eggs soon hatch into dark-coloured larvæ, which may be found of all sizes during the latter part of May and early part of June. They are generally found on the upper surface of the leaf, which they riddle and devour. When very numerous they devour all but the very largest leaf-ribs, and we have seen the wild vines throughout whole strips of country rendered most unsightly by the utter denudation which these insects had wrought. The larvæ feed for nearly a month. They then descend from the vine and bury themselves a short distance in the earth, where, after each forming a little earthen cell, they change to pupæ of a deep dull yellow colour, and in about three weeks more issue as beetles. These beetles leave the ground from the middle of June to the middle of July, and, so far as we are aware, do not breed again till the following spring—there being but one brood each year. They subsist on the leaves during the fall, but the damage they inflict is trifling compared to that which they cause in spring.



The accompanying illustration represents this beetle in its various stages, and also the riddled and jagged appearance (*a*) of the leaf on which they feed. *b* is a magnified view of the full-grown larva, the natural size being indicated by the hair-line at the side. *c* represents the small earthen cell of the pupa, and *d* the mature beetle magnified, the true size shown by the hair-line.

Like all other flea-beetles, this species has very stout, swollen hind thighs. By means of these strong thighs they are enabled to jump about very energetically, and are consequently very difficult to manage during the summer months. In the winter time, however, they can be destroyed in great numbers while hidden in a torpid state in their retreats. Clean culture and general cleanliness in the vineyard will, to a great extent, prevent this insect's increase. Dr. Hull, of Alton, Ills., tells us that they were once so numerous in a small vineyard of his, that in the spring of 1867 he burnt them out by surrounding them with fire, and letting the fire run through the dry grass in the vineyard. "It was a rough remedy, but as his crop was destroyed, he let the beetles follow suit."

The larvæ can be more easily destroyed by an application of dry lime, used with a common sand-blower or bellows. This has been found to be more effectual than either lye or soap-suds, and is withal the safest, as lye, if used too strong, will injure the leaves.

This insect, like so many others, will one year swarm prodigiously, and then again be scarcely noticed; and such changes in numbers depend mainly on conditions of the weather, as we know of no parasite which attacks it. In the spring of 1868, though they were at first out in full force, yet after some subsequent severe and cold weather, they had mostly disappeared. They are apt to be most troublesome where alder abounds in the woods.—*American Entomologist.*

* The term *Thrips* is confined to an anomalous group of insects—mostly cannibal, but exceptionally vegetable feeding—of which Halliday made a separate Order (*Trysanoptera*), but which are to-day included in the *Homoptera*, or Whole-winged Bugs, by most authors, though they seem to have close affinities to the *Orthoptera*, and to the *Pseudoneuroptera*

The Poisonous(?) Tomato Worm.

To the Editor.

Sir,—In your issue of 15th October, which a friend has just placed in my hand, I have read your article under the above heading.

No doubt a fair criticism of such a subject falls within the scope of your duties. But I ask, have you a right as a gentleman, however retired within the Editorial *Sanctum Sanctorum*, to make such reflections upon any inhabitant of Dundas as your article contains—without at least first learning either the facts of the case or his habits of life? And this too, after my name had been so freely mentioned in the recent paragraph in the newspapers you refer to. I assure you the paragraph or any newspaper mention of the matter was not of my seeking, or to my liking; nor was it strictly according to the truth of the singular occurrence.

Why your mind revels in pouring "spirits down to keep spirits up" I cannot imagine, because there is no such statement in the paragraph in question, as it only states the application of tobacco steeped in whiskey as a poultice to the wounded parts; and you do not hesitate to add, for sensational writing, another circumstance to such paragraph, namely, "He sent a swift messenger for the doctor," which, however cleverly written, is purely your own invention.

Now, although not so heroic as to thrust the "poisonous spines" of any insect into my fingers, as you say you have done in order to try its powers, yet all my neighbours will inform you—if you care to know—that I am about one of the healthiest and hardest subjects to be affected by poisonous matter, and am in no way inclined to "erysipelas," or to "get my arm into a sling," like your acquaintance you mention. I can assure you I have gone among cholera subjects and mosquitoes, without suffering more than you appear to have done from your experimental exploits in spiny science.

I can also assure you that no one acquainted with me will give you my character as a man accustomed to imbibe too freely; no, not even upon the excuse of the "Venomous beast," as you call the tomato worm.

Now, sir, if you think because you mention no name, that your article is a fair one, you must have forgotten that this tomato worm case has singularly become one of most annoying notoriety, owing to that

mighty engine of knowledge, "the Press," and as I have stated above quite against my will and without any act or part or even knowledge, until too late to prevent its publication; in fact, that it was published in the first instance only from information got through my children and their young friends, so far as I can learn.

I am, sir, your obedient servant,

"THE MAN OF DUNDAS."

Dundas, Nov. 23rd, 1870.

NOTE BY THE ENTOMOLOGICAL EDITOR.—From the above communication it appears that we have unintentionally wounded the feelings of "The Man of Dundas," by our recent article on the supposed poisonous Tomato Worm. This we regret very much, as our object was, not in any way to be personal, but to cast as much ridicule as possible upon the popular error of ascribing venemous qualities to this much maligned caterpillar. We have so often endeavoured in the columns of THE CANADA FARMER to disabuse the minds of the people of this country of their terror of this creature, and apparently to so little purpose, that we at once seized upon the little paragraph that went the rounds of the papers respecting the case at Dundas, as a fitting text for another article. We can assure our correspondent that we could have had no reference to his habits or mode of life, since to this hour we do not even know his name, much less are we acquainted with his private character. We merely inferred, both from the account of the case and from the popular and we believe proper treatment in such emergencies, that an unusual dose of spirits had been taken as a remedy. We wish very much that he had preserved the specimen which appears to have so much affected him, and sent it for identification to us or to some other entomologist. We are really most anxious to find out what ground there is, if any, for all the wonderful stories we hear regarding this poor unfortunate insect. For another article on the subject we may refer our readers, and our correspondent in particular, to THE CANADA FARMER for October 15, 1869, page 378.

THE RAPE BUTTERFLY, OUR NEW CABBAGE PEST.—This most destructive insect is fully realizing our prophesies. Salt is the common remedy, but Mr. Quinn, at a late meeting of the N. Y. Institute Farmers' Club, gave his experience as follows:—"I have tried no less than fifteen different powders and decoctions, and find the best result from the application of a mixture composed of twenty parts sulphate of lime, one part carbolic powder, and three or four parts of quicklime. This I sprinkle in small quantities upon the leaves and parts affected, making the application in early morning before the dew is off, or after a shower. Frequent repetition is sometimes necessary."

Correspondence.

Preserving Woodlands.

To the Editor.

SIR,—I noticed the other day an excellent suggestion in the address of the President at the late successful Fair at London, viz., that farmers should begin to plant trees for fire-wood, and he suggested the white willow as a good one for that purpose. I fear, however, that in a country like this, where labour is so expensive and the means of farmers so limited, few will act upon his excellent suggestion. But where farmers have a fair proportion of their farms in "bush," they can secure fire-wood for their own use and their descendants for generation after generation. A friend of mine John M. Ball, Esq., of Niagara, has not allowed his cattle, or horses, or sheep, to run in his "bush" for many years past; and he told me recently, that thousand and thousands of young trees are growing up in his bush, to the height of ten and twenty feet, which will replace those trees that will be cut down, when they cease growing, for the use of the house. In this way he expects, and I think with reason, that his "bush" will be continually replenished, as the seeds of the old trees strike root and send up young ones every year.

It is true, Mr. Ball loses a little pastnre about the skirts of his "bush," but that loss is nothing to what he gains by keeping his animals out of his bush, who would destroy the young shoots by browsing, if he allowed them, as most farmers do, the run of it. I might say that Mr. Ball mentioned his plan to me several years ago; and when travelling through the country, I have often regretted that the fine wood lots which I passed, and which were evidently growing thinner and thinner every year, had not been treated as Mr. Ball's have been.

I have often thought of writing to the public papers on the subject, but did not like to do so, until I had learned from Mr. Ball how his plan worked. Having now obtained full information on the subject, I feel it my duty to give it to the public; for, though it may be somewhat out of my line to write on such a subject, yet I believe it to be the duty of every patriot to do what he can to benefit his country.

The preservation of timber is well known to have a beneficial climatic influence, by drawing down more rain from the sky, as proved most incontrovertibly by the late very extensive experiments in planting trees, by the Pasha of Egypt; and as we suffer most years from excessive droughts in Ontario, it should be the object of all farmers to secure more moisture by maintaining as great an extent of forest as possible in the country. I trust that those farmers who can do so, will follow the excellent example of Mr. Ball. T. B. FULLER.

Toronto, Oct. 3, 1870.

Working Cows.

To the Editor.

SIR,—A few years ago I read in some agricultural paper of a man who had trained a pair of cows to plough and do other farm work; and so far from spoiling them for dairy purposes, he said they gave more milk than any other two cows he had. Not that the working made them milk better, but the extra care and feed they got on account of the work told on the milk. Would you state, for the information of a reader of your valuable journal, whether in your opinion such a plan would be practicable, and would it be worth while for one near a cheese factory, with a small quantity of arable land, to make the experiment? J. M.

Bridgewater.

NOTE.—With a *small* quantity of land, entailing only light work, the experiment might be made; but heavy work would be apt to tell injuriously on the secretion of milk.

The Cattle-fly Disease.

Notwithstanding the investigations that have been made during the past summer into the nature and causes of the so-called "fly disease," by veterinarians and entomologists, there still seems to my mind some doubt on one or two points which require further elucidation. Why, for instance, has the complaint been so much more severe during the past season? If the fly be the sole cause, have we not had the fly from time immemorial, and yet it never gave a tithe of the trouble that we have experienced this year. One thing, however, and that the most important, seems to have been established, and that is the efficacy of tar in various preparations to keep off the pest and heal the sores.

A curious fact in connection with the matter has come under my notice, namely, that these flies which have tormented cattle and horses so during the past summer seem to shun particular places. Cattle kept in dark stables during the day, and turned out to graze in the night, are free in a great measure from the torment, and when soiled during the day in the stable in the dark, and turned out at night, take no harm.

In the township of Bosanquet, at the upper turn of the River Sable, there is a long wooden bridge about twenty feet high above the water, and defended with the usual protection on each side. This bridge, or rather the middle of it, seemed to have an immunity against the attacks of the flies, and the cattle and horses soon found it out. The consequence was that they crowded the bridge, and remained on it during the day-time, until the dung of the animals had accumulated to more than a foot deep, and it seems likely to destroy the timbers by the decay it will induce, for its being nobody's

THE

CANADA FARMER:

A MONTHLY JOURNAL

OF

AGRICULTURE, HORTICULTURE,

AND

RURAL AFFAIRS.

VOLUME II.

(NEW SERIES,)

JANUARY TO DECEMBER 1870.

Toronto:

GLOBE PRINTING COMPANY, PUBLISHERS, 26 & 28 KING STREET EAST,

1870.

CONTENTS.

EDITORIAL.
AGRICULTURAL INTELLIGENCE.
THE FIELD.
STOCK DEPARTMENT.
VETERINARY DEPARTMENT.
THE DAIRY.
POULTRY YARD.
CORRESPONDENCE.
HORTICULTURE.
ENTOMOLOGY.
APIARY.
RURAL ARCHITECTURE.
NATURAL HISTORY.
THE HOUSEHOLD.
MISCELLANEOUS.
POETRY.

INDEX.

EDITORIAL.

PAGE.
A Day's Labour 342
Agriculture and Arts in 1560 100
—— in New Brunswick 182
Agricultural Premiums 342
—— Societies 101
Almanac, Rural 24
American Entomologist and Botanist 223
Artificial Manures 450

Birds Small, Destruction of 182

Canadian Phosphate of Lime 422
Carriage of Cattle by Railway 308
Cities, Influence of upon the Atmosphere 383
Colorado Potato Beetle 382

Death of the State Entomologist of Illinois 23
Diseases of the American Horse ... 458
Drainage Act, The 142
Duty on Live Stock 142

Editorial Notes 224, 264, 450
Emigration to Canada 102
—— Westward 303
Emigrants Disappointed 221
—— Returning 102
English Agricultural Labourer, The 64
Entomological Society of Canada.. 23
European Continental Agriculture 21

Farm and City 181
—— Labour 101
Farmers and Protectionists 141
—— Need Pluck 62
Farmers' Clubs 457
—— ,, Constitution and By-laws of 458
Farming Capital 24
Field Labour at 90° Fahrenheit .. 302

Galt Sheep Fair and Ram Sale 344
Good Management 24

Harvest and Weather Notes 341
—— of 1570 421
Homestead Law, A 22

Immigration and Employment 63
—— Societies 263
Importation of Thoroughbred Stock, Encouraging the 344

John Johnson, of Geneva 63

Labour, A Day's 342
—— Statistics 263

Natural Method of Propagating Fish 343
Notes on the Weather.. 24, 65, 103, 143, 183, 224, 261, 301, 341, 382, 422, 460.
Notices of Publications 24, 65, 223, 225, 383

Our New Volume 21

Permanence of Improvement in Land by Manure 202
Protectionists and Farmers 141
Provincial Association, The 141
—— Exhibition 302, 381, 386

Quebec Provincial Exhibition ..343, 395

Re-organizing Farm Life 458
Report of the Michigan Board of Agriculture for 1869 450
—— U. S. Commissioner of Agriculture for 1869 450

Season and Crops, The.... 261, 301, 341
Seeds 225
Steam for the Farm 61

Thomson's Road Steamer 183
Trying Experiments 263

United States' Agricultural Report 222

Volume for 1870 457

Wooden Railways 64
Wool Clip of 1870 264

AGRICULTURAL INTELLIGENCE.

Agriculture, Board of.... 75, 115, 117
Agricultural and Arts Association 36, 231
—— ,, ,, Annual Meeting 304
—— ,, ,, Council of..... 117
—— ,, ,, Meeting of 226
—— Exhibition, Bath and West of England 278
—— Exhibitions for 1870 .....317, 358
—— ,, in West Northumberland 427
—— Exposition in Paris 276
—— Meeting 117
—— Society of Rimouski 229
—— Societies of Ontario 228
Automatic Grain Binding 357

Bee-keepers' Association, Annual Meeting 395
Beet Sugar, Culture of in France.. 316
—— Manufacture of 156
Buffalo Live Stock Market 277

Carling, Hon. J., Letter from 316
Cattle Plague 468
Cheese in Australia 231
—— Trade 317

Diseases of Stock 230
Double Furrow Plough Competition 156
Drainage Act 277
—— of Swamp Lands 357

Free Grants 36
Fall Shows 358

Galt Sheep Fair 344, 427

Halton County Fair 427
Harvest in France 276

Importations, Mr. Cochrane's 357
Items..36, 156, 198, 231, 278, 317, 358, 398, 427, 460

London Horse Show 276

Mowing Machines, English and American 317

Oxford Prize Farm 356

Ploughing Match 469
Produce Trade of 1869 74
Provincial Exhibition 355
—— ,, Buildings.... 276
—— ,, Prize List..428-37
—— ,, Report of..386-94

Quebec Provincial Exhibition..343, 395

Reaping Machines, International Trial of 315
Royal Society's Show 356

Sales of Shorthorns in Britain..11, 198, 230, 251, 460
—— of Stock..11, 37, 51, 183, 208, 249, 251, 292, 318, 338, 368, 396, 412, 427, 460
Smithfield Club Show 74
Spring Fair at Cobourg 198
Steam Ploughing 277

Testimonial 116
Trial of Agricultural Implements at Utica 318
Trial of Double Furrow Ploughs... 468

United States' Crops 398
—— Wheat Crop 276

West Northumberland Agricultural Society 75
Western Fair, The 397
Wheat Crops of the United States, 1870 276
—— Midge in England 356
—— Producing Countries 231
Wools, Fine, in Australia 317

THE FIELD.

Adulteration of Manures 40
Alsike Clover 4, 169
Arnold's Hybrid Wheat 128
Ashes, Leached 444
Autumn Work, Hints on 321
—— ,, Late 361

Backwoods Farm....327, 364, 404, 441
Barley, Harvesting 244
Barnyard Manure 367
—— Management 441
Beet Sugar...6, 81, 156, 162, 316, 322, 362, 402, 443
—— and Mangolds compared..... 123
—— The Silver 208, 246
Birds, Keeping from Corn 128
Broom Corn 168
Buckwheat 247, 283

Canada Thistles 48, 121, 127, 168
Carrots, Cultivation of 164
Chemical Manures 125
Clover 5, 282
—— Alsike 4, 169
—— as a Shade 283
—— Experiments with Thick and Thin Sown 45
—— Management of, after Haying 247
Clovers, The (with illustration)... 284
Comparative Value of Hay, Corn and Roots 167
Corn, Culture of 202
—— Fodder, Saving 329
—— Hilling 287
—— Keeping Birds from 96
—— Leaf Fodder 373
Cost of Producing an Acre of Wheat 48
Couch Grass, Destroying 171
Cow Manure 85
Curing Hops 287

Drainage in Relation to Temperature 43
—— Practical 4, 42, 83, 123, 168
—— Tile 122
Draining 242
—— at Low Levels 323
—— Done for Nothing 165
—— Wet Lands 408
—— with Wood 4
Drying and Harvesting Grain and Hay Artificially 245
—— Roots 440

Early Sowing 247
—— Spring Work 121
—— Winter Work 401
Experiments with Thick and Thin Sown Clover 45

Fallowing, Summer 241
Farm, Visit to a.—Turnips, Drainage 285
"Farming Don't Pay" 2
Fence Posts, securing 447
Field Operations 167
Fodder, Saving Corn 329
Forests and Health 205
—— and Tree Planting 170
—— waste of 446
Frozen Roots 85

Gate, Cheap 329
Gentleman Farming 446
Grafting Potatoes 47
Grinding Hay and Straw for Feed.. 245
Growing Green Crops for Soiling .. 445
Gypsum 444

Harvesting Barley 244
Hay 283
—— and Grain, Drying Artificially 245
—— and Straw, Grinding for Feed 245
——, Corn and Roots, Comparative Value of 167
—— Crop 247, 284
—— Early Cut 201
—— Weighing 205
Haymaking in England 244
Hedges and Mice 83
—— Making 1, 41
—— Norway Spruce for 226
—— When to Prune 166
Hessian Fly, The 287
Highways, Pasturing 248
Hilling Corn 287
Hints on Autumn Work 321
—— to Wheat Growers 203
Hops, Curing 387
——, Growing 161
——, Picking and Curing 329

Improving Old Meadows 168
Insect Depredations 368
Items.....6, 49, 238, 447

Land, Overflowed 45
Laying Down Permanent Pastures 161
Lime 407
Liming Land 81

Mangolds and Beet 123
Manure, Applying to the Soil....5, 246
—— Barnyard 367
—— Cow 85
—— Lime 407
—— Liquid 288
—— Make Better 44
—— Night Soil 408
—— Permanence of Improvement in Land by 202
—— Salt as a 43, 325
—— Surface Application of 328
—— Trade 208

CONTENTS.

EDITORIAL.
AGRICULTURAL INTELLIGENCE.
THE FIELD.
STOCK DEPARTMENT.
VETERINARY DEPARTMENT.
THE DAIRY.
POULTRY YARD.
CORRESPONDENCE.
HORTICULTURE.
ENTOMOLOGY.
APIARY.
RURAL ARCHITECTURE.
NATURAL HISTORY.
THE HOUSEHOLD.
MISCELLANEOUS.
POETRY.

INDEX.

EDITORIAL.

PAGE.
A Day's Labour 342
Agriculture and Arts in 1869 100
—— in New Brunswick 163
Agricultural Premiums 342
—— Societies 101
Almanac, Rural 24
American Entomologist and Botanist 223
Artificial Manures 459

Birds Small, Destruction of 182

Canadian Phosphate of Lime 422
Carriage of Cattle by Railway 303
Cities, Influence of upon the Atmosphere 383
Colorado Potato Beetle 382

Death of the State Entomologist of Illinois 23
Diseases of the American Horse ... 453
Drainage Act, The 142
Duty on Live Stock 142

Editorial Notes 224, 264, 450
Emigration to Canada 102
—— Westward 303
Emigrants Disappointed 221
—— Returning 102
English Agricultural Labourer, The 64
Entomological Society of Canada .. 23
European Continental Agriculture 21

Farm and City 181
—— Labour 101
Farmers and Protectionists 141
—— Need Pluck 62
Farmers' Clubs 457
—— ,, Constitution and By-laws of 458
Farming Capital 24
Field Labour at 90° Fahrenheit .. 302

Galt Sheep Fair and Ram Sale 344
Good Management 24

Harvest and Weather Notes 341
—— of 1870 421
Homestead Law, A 22

Immigration and Employment 63
—— Societies 263
Importation of Thoroughbred Stock, Encouraging the 344

John Johnson, of Geneva 63

Labour, A Day's 342
—— Statistics 263

Natural Method of Propagating Fish 343
Notes on the Weather .. 24, 65, 103, 143, 183, 224, 261, 301, 341, 382, 422, 460.
Notices of Publications 24, 65, 223, 225, 383

Our New Volume 21

Permanence of Improvement in Land by Manure 262
Protectionists and Farmers 141
Provincial Association, The 141
—— Exhibition 302, 381, 386

Quebec Provincial Exhibition .. 343, 395

Re-organizing Farm Life 458
Report of the Michigan Board of Agriculture for 1869 450
—— U. S. Commissioner of Agriculture for 1869 450

Season and Crops, The 261, 301, 341
Seeds 225
Steam for the Farm 61

Thomson's Road Steamer 183
Trying Experiments 263

United States' Agricultural Report 222

Volume for 1870 457

Wooden Railways 64
Wool Clip of 1870 264

AGRICULTURAL INTELLIGENCE.

Agriculture, Board of 75, 115, 117
Agricultural and Arts Association 36, 231
—— ,, ,, Annual Meeting 304
—— ,, ,, Council of 117
—— ,, ,, Meeting of 226
—— Exhibition, Bath and West of England 278
—— Exhibitions for 1870 ..... 317, 358
—— ,, in West Northumberland 427
—— Exposition in Paris 276
—— Meeting 117
—— Society of Rimouski 229
—— Societies of Ontario 228
Automatic Grain Binding 357

Bee-keepers' Association, Annual Meeting 396
Beet Sugar, Culture of in France .. 316
—— Manufacture of 156
Buffalo Live Stock Market 277

Carling, Hon. J., Letter from 316
Cattle Plague 468
Cheese in Australia 231
—— Trade 317

Diseases of Stock 230
Double Furrow Plough Competition 156
Drainage Act 277
—— of Swamp Lands 357

Free Grants 36
Fall Shows 358

Galt Sheep Fair 344, 427

Halton County Fair 427
Harvest in France 276

Importations, Mr. Cochrane's ... 357
Items .. 36, 156, 198, 231, 278, 317, 358, 398, 427, 460

London Horse Show 276

Mowing Machines, English and American 317

Oxford Prize Farm 356

Ploughing Match 469
Produce Trade of 1869 74
Provincial Exhibition 355
—— ,, Buildings 276
—— ,, Prize List .. 428-37
—— ,, Report of .. 386-94

Quebec Provincial Exhibition .. 343, 395

Reaping Machines, International Trial of 315
Royal Society's Show 356

Sales of Shorthorns in Britain .. 11, 198, 230, 251, 409
—— of Stock .. 11, 37, 51, 133, 208, 249, 251, 292, 318, 338, 365, 398, 411, 427, 440
Smithfield Club Show 74
Spring Fair at Cobourg 198
Steam Ploughing 277

Testimonial 116
Trial of Agricultural Implements at Utica 318
Trial of Double Furrow Ploughs ... 468

United States' Crops 398
—— Wheat Crop 276

West Northumberland Agricultural Society 75
Western Fair, The 307
Wheat Crops of the United States, 1870 276
—— Midge in England 356
—— Producing Countries 231
Wools, Fine, in Australia 317

THE FIELD.

Adulteration of Manures 40
Alsike Clover 4, 109
Arnold's Hybrid Wheat 128
Ashes, Leached 445
Autumn Work, Hints on 321
—— ,, Late 361

Backwoods Farm 327, 364, 404, 441
Barley, Harvesting 244
Barnyard Manure 367
—— Management 441
Beet Sugar 6, 81, 156, 182, 316, 322, 362, 402, 443
—— and Mangolds compared 128
—— The Silver 209, 366
Birds, Keeping from Corn 128
Broom Corn 166
Buckwheat 247, 283

Canada Thistles 46, 121, 127, 168
Carrots, Cultivation of 164
Chemical Manures 125
Clover 5, 282
—— Alsike 4, 109
—— as a Shade 288
—— Experiments with Thick and Thin Sown 45
—— Management of, after Haying 247
Clovers, The (with illustration) 284
Comparative Value of Hay, Corn and Roots 167
Corn, Culture of 202
—— Fodder, Saving 329
—— Hilling 287
—— Keeping Birds from 96
—— Leaf Fodder 373
Cost of Producing an Acre of Wheat 48
Couch Grass, Destroying 171
Cow Manure 85
Curing Hops 287

Drainage in Relation to Temperature 43
—— Practical 4, 42, 83, 143, 168
—— Tile 123
Draining 242
—— at Low Levels 323
—— Done for Nothing 165
—— Wet Lands 408
—— with Wood 4
Drying and Harvesting Grain and Hay Artificially 245
—— Roots 440

Early Sowing 247
—— Spring Work 121
—— Winter Work 401
Experiments with Thick and Thin Sown Clover 45

Fallowing, Summer 241
Farm, Visit to a —Turnips, Drainage 285
"Farming Don't Pay" 2
Fence Posts, securing 447
Field Operations 167
Fodder, Saving Corn 329
Forests and Health 205
—— and Tree Planting 170
—— Waste of 446
Frozen Roots 85

Gate, Cheap 329
Gentleman Farming 446
Grafting Potatoes 47
Grinding Hay and Straw for Feed .. 245
Growing Green Crops for Soiling .. 445
Gypsum 444

Harvesting Barley 244
Hay 283
—— and Grain, Drying Artificially 245
—— and Straw, Grinding for Feed 245
——, Corn and Roots, Comparative Value of 167
—— Crop 247, 284
—— Early Cut 201
—— Weighing 205
Haymaking in England 344
Hedges and Mice 83
—— Making 1, 41
—— Norway Spruce for 326
—— When to Prune 166
Hessian Fly, The 287
Highways, Pasturing 248
Hilling Corn 287
Hints on Autumn Work 321
—— to Wheat Growers 203
Hops, Curing 387
——, Growing 161
——, Picking and Curing 329

Improving Old Meadows 103
Insect Depredations 363
Items 8, 40, 238, 447

Land, Overflowed 45
Laying Down Permanent Pastures 161
Lime 407
Liming Land 81

Mangolds and Beet 123
Manure, Applying to the Soil 5, 246
—— Barnyard 367
—— Cow 85
—— Lime 407
—— Liquid 288
—— Make Better 44
—— Night Soil 403
—— Permanence of Improvement in Land by 262
—— Salt as a 43, 125
—— Surface Application of 328
—— Trade 108

PAGE.

Manures, Adulteration of 49
—— Chemical 125
Meadows, Improving Old 168
Mice and Hedges 83
Mills, A 3
Mowing Machines 242

Night Soil 408
Norway Spruce for Hedge Shelter. 826
Nut-bearing Trees, Raising from Seed 0

Oats, White Schonen 45
—— Wild 163, 204
Overflowed Land 45

Pastures, Laying Down Permanent 161
—— Stocking 85
Ploughing Stubble after Harvest .. 327
Ponds, Artificial Surface 202
Potato Planting 165
—— Produce 125
—— Rot, Preventing 248
Potatoes, Grafting 47
—— in England 171
—— Lifting and Storing 324
Practical Drainage ..4, 42, 84, 123, 163

Rails, Splitting 45
Reaping Machines, Early 44
Remedy for Potato Rot 248
—— for Turnip Fly 228, 329
Roots, Frozen 85
—— Importance of 201
—— Storing 325
Rotary Engine for Farmers 3
Rust on Wheat 283
Rye for Early Pasturage 325

Salt as Manure 43, 325
Salting Wheat Land 410
Schooner Oats, White 43
Science and Farming 83, 121
Seasons of 1868, 1869 43
Seed, Selecting 128, 326
—— Raise your Own 166
Seeding Wheat, Thick or Thin 283, 325
—— Clover, " " 45
Sewage upon Land 204
Silver Beet 268, 366
Soda-ash for Wire Worm 5
Soil, Working the 41
Soot 447
Sorrel, Exterminating 206
Sowing, Early 247
—— Thin 86
—— Timothy in Autumn 368
Spring Wheat after Winter-killed Fall Wheat 409
—— Work, Early 121
Stirring the Soil in Summer 286
Stocking Pastures 85
Stubble, Ploughing after Harvest.. 327
Stumps, Removing 3
Sugar Beet 6, 81, 162, 322, 362, 402
—— and Mangolds 128
Summer Fallowing 241
Superphosphate of Lime 328

Thin Sowing 86
Thistles 46, 124, 127, 165
Tillage vs. Pasture 288
Timothy, Sowing in Autumn 368
Tree Planting, Forests and 170
Trees, Nut-bearing, Raising from Seed 6
Turnips 247
Turnips vs. Wheat 443

Under-Draining 242

Visit to a Farm—Turnips, Draining, etc. 248, 258, 285

Weighing Hay 205
Wheat, Arnold's Hybrid 128
—— Cost of Producing an Acre of. 48
—— Growers, Hints to 203
—— Midge in England 368
—— Question, The 243
—— Rust on 283
—— Salting 410
—— Spring, after Winter-killed Fall Wheat 409
—— Thick or Thin Seeding for. 283, 325
—— Winter 43, 281
Wild Oats 163, 205
Winter Work, Early 401
Wire Worms, Soda-ash for 5

STOCK DEPARTMENT.

American Shorthorn Herd Book .. 128
Ayrshire Stock for Canada 250

Barmion Shorthorns 129
Barren Cows and Heifers 182
Birmingham Fat Cattle Show 11
Breeding Cattle 10
—— Cows for the Dairy 447
—— Horses 51, 96
—— Mares 10
—— Sows 87
Bulls among Cows 292

Calf, To Fatten a 250
Calves, Feeding and Rearing 51, 90, 131, 290
—— Weaning and Rearing Five Hundred 201
Canadian Herds, Notes on ..7, 123, 178
—— Horses for Cavalry 450
Cattle, Cross-breeding 205
—— Feeding 331
—— Housing and Feeding 130
—— Keeper's Table 331
—— Preparing for Fattening 447
—— Stalls and Manure 136
Colts, Weaning 411
Corn Leaf Fodder 376
Cross Breeds and Grades 411
Cut Feed for Horses 450

Death of Cattle by Smut 450

Early Maturity 410
Exportation of Breeding Stock to America 207

Fat Animals, When to Stop Feeding 175
Fattening Cattle 300
—— " A Drover on 291
Feeding Animals 175
—— Grain to Stock 11
Floors for Cattle Stables 52

Galt Sheep Fair 344
Good Pigs need Good Care 250
Grinding Hay and Straw for Feed . 245

Heifers, Treatment of 208
Hereford Cattle 8
High Price of Horse Flesh 11
Hogs, To Fatten Profitably 206
Holstein Cattle 88
Horse, Points of the 40
Horses, Breeding 51, 86
—— Improving Our 410
—— Turning Out to Grass 292
Housing Stock in Winter 368
How much Manure to a Cow 251

Importation of Live Stock 207
Items 11, 176, 208, 292, 411

Judging Cattle by Points 291

Kelso Ram Sales 371

Lambs, Care of Young 174
—— Weaning 240
Lice on Cattle 208
Lincoln Sheep 175
Live and Dead Weight of Animals. 53
—— Stock at the Provincial Exhibition 181

Mollendean Leicesters 369
Musty Oats 450

Never Mind the Horses; or a Few Ways to Bring up a Colt .. 206

Pig Breeding and Feeding 443
Pigs, A Warm Bed for 10
—— Care of in Winter 89
—— Good, Need Good Care 250
—— Weaning 440
Prince Consort's Farm, The 87

Ram Letting 291
Rams, Selecting Stock 370

Selection of Breeding Stock 449
Sheep, Disturbing 52
Shoeing Horses 292
Shorthorn Sales in Britain 11, 108, 220, 251
—— Mr. McMillan's 251
—— and Stock Sales....11, 87, 51, 133, 208, 249, 251, 292, 313, 338, 368, 396, 411, 427
Shrinkage on Hogs 132, 207
Sell a Cow, How much to 371
Sparred Floors for Cattle and Sheep Houses 207
Stallions for Common Labour..... 370
Steaming Food for Stock 52
Stock Need the Best of Care Now . 448
Stock and Crops for Farms 371
Stocking Pastures 85
Swine, Sundry Breeds of 330

Value of Straw for Fodder 450
Variety of Food for Hogs 440
Visit to a Farm—Barn and Stock .. 248

Wintering Swine 50
Wool 289
Working Milk Cows 443

VETERINARY DEPARTMENT.

PAGE.

Abscess in the Side 200
Are Twin Calves Good Breeders?.. 252

Bleeding Cattle 253
Bog Spavin 210

Congenital Distortion in a Foal.... 253
Cutaneous Irritation 293

Empiricism 177
Ergotized Grass 332

Flies on Cattle 332
—— Horses 332

Hoof All 332
—— Rot 15
Horse, Urinary Organs of the 293
Horse's Foot, Diseases and Structure of 13
—— Injuries to 176, 209
—— Internal Structure of 53
—— Laminitis in 154, 177
—— Navicular Disease of 90, 133
—— Osseous Structure of 54
—— Hoof, Development of 53
—— Shoulder, Injuries to 176, 209
Horses, Colic in 252
—— Carrots for 462
—— Castration in 451
—— Effects of Confined Air on.... 14
—— Flies on 332
—— Obscure Lameness in 451
—— Purgatives for 14
—— Shoeing 15
—— Stabbering in 173
—— Strangles in 176, 371
—— Stringhalt in 209
—— Sunstroke in 293
—— Teething in 208
Hydatids in Sheep's Brains 134

Lambs, Goitre or Swelled Neck in 210, 252
Laminitis 134, 177
Lymphatitis 209

Milk Fever in Cows 16

Navicular Disease 133
Nephritis, or Inflammation of the Kidneys 371
—— " Chronic 411

Ontario Veterinary College 178

Rheumatism in Sheep 452

Sheep Dipping 293
Singular Local Disease 134
Slabbering in Horses 176
Staggers in Pigs 15, 90
Strangles 176, 371
Sweany 412

Teats, Injuries and Obstructions to the 412

Udder, Swollen 333
Urinary Calculi 411

Veterinary College 176
—— Queries 332

Womb, Inversion of 134

THE DAIRY.

PAGE.

Accounts with the Cows 324
Advice to Dairymen 256
American Factory System in England 267

Blankets on Milk Cans 453
Butter, Amount of from a given Quantity of Milk 413
—— and Cheese, Standard 135, 211
—— Canadian 256
—— Causes of Bad 204
—— Factories 97
—— for Winter Use 334
—— from One Cow 16
—— Packing for Winter 294
—— Question, The 254
Canadian Cheese in England 57
Cheese Factories 97, 453
—— Factory System in England .. 186
—— in Australia 231
—— Production of 333
—— Trade, The 317
Churning Slow 414
—— Milk or Cream! 16
Colouring Cheese 205
Corn Leaf Fodder 376
Cows, Extraordinary 17
—— for the Dairy, How to Raise.. 414
—— Hay required for 17
—— Winter themselves 412

Dairy Farming for Immigrants....210, 254
—— Meeting 96, 134
—— Operations 185
Dairying, Essentials to 294
Dairymen's Convention, American. 94
—— " Canadian 56, 91
—— " Ohio 97
—— " Vermont. 90

Educating Milkers 56

Feeding Dairy Cows 135
Floating Curds 256

Grinding Cheese Curds 372

Hard Milkers 44

Items 454

June Butter the Year Round 254

Keeping up Dairy Stock 413

Largest Dairy in the World 454

Milk and Butter from One Cow 294
—— and Milk Testers 212
—— Composition of in Different Animals 57
—— Fever in Cows 16
—— How to Test the Richness of.. 135
—— Proper Time to Skim 254
Milking 412

Poison Cheese 57

Raising Cows for the Dairy 184
Right and Wrong Way to Milk.... 453
Roots for Milch Cows 453

Salting Milch Cows 57, 333
Soiling Crops for Milch Cows?..... 212
Sulphur as a Deodorizer 373
Summer Management of Dairy Cows 257

Teats, Injuries and Obstructions to the 412

Udder, Swollen 333

Visit to a Farm—The Dairy 253

Why Winter Butter is Poor 372
Winter Dairying 413, 453
Winter Feed for Milch Cows 295
—— Treatment of Milch Cows 452

POULTRY YARD.

PAGE.

Canada vs. England for Keeping Fowls 31
Cock, Influence of the 313

Dominique Fowls 191

Eggs for Hatching 101
—— Physiology of 334

Farmyard Poultry 54
Feathers, Loss of 334
Fowls, Classification of 333
—— for Limited Spaces 258
—— Kept in Confined Spaces..... 414
—— vs. Worms 98

Geese, New Treatment of 314
Golden Pheasants 136
Guinea Fowls 31

Judging at Poultry Shows 232

Ontario Poultry Association 31, 136, 191

PAGE.

Pea Fowl, Management of 98
Poultry as Farming Stock 414
—— Exhibitions 30
—— Keeping 192
—— " on a Large Scale..102, 333
—— Show, a Spring 93
—— " Birmingham 54
—— " Leeds 55
—— " New York 55

Turkeys, Raising 31, 136, 333
—— Wild 55

Vulture Hock 334

Water for Fowls in Winter 98
Wintering Fowls in Canada 55

CORRESPONDENCE.

PAGE.

Agricultural Advertisements 180
—— Books 201
—— Matters in the Northern District 300

Barley, Which Kind to Plant 140
Beet Sugar Making 417
Birds, Protection of 219
Broom Corn 100, 140
Builder's Guide 21

Cattle Fly Disease 456
Clearing Land by Steam 140
Coal Tar and Crude Petroleum for Roofing 420
Concrete Brick 21
Crops about Cobourg 220
—— and Weather in Hastings 140
—— Irrigation 330
—— on a Small Farm 29
Crushing Bones for Manure 141

Economy of Time 90
Editorial Correspondence 258
Emigration of Tenant Farmers.... 30
Emigrant, Helping 180

Farm Implements—A Seed Drill .. 220
Grass Seed, Prices of 20

Hang on to the Farm 179
Hay Press 21
Helping Emigrants 130
Hybridizing Wheat 261

Immigration, Preparing for 50
Immigrant, Cheer the 210

Leached Ashes 421
Lucerne, &c. 340

Mushrooms 457

"Name! Name!" 140
Notes from Grenville County 180
Noxious Weeds 179

Pedigrees of Exhibition Animals .. 420
Pigs and Experiments 260
—— Suffolks 331
Potato Beetle, The 340
Preserving Woodlands 456

Queries—Salt and Lime, &c. 220

Root Cellar, Capacity of a 381

Scheele's Green 421
Seeding Bush Land 60
Settler's Story, A 60
Sharpening Saws 220
Steam Cultivation for Canada 96
Straw Cutting 60
Stumps, Getting Rid of 60
Sugar Beet Seed 420

Teeth, a Test of Age 421, 457

Wind Power for Farm Use 141
Working Cows 456

HORTICULTURE.

PAGE.

Acidometer; Twitchell's 413
Air Treatment of Wines 307
Algoma, Fruit in 20
Apple, Best Summer 151
—— Borer, To Prevent Attacks of 147
—— Hybridizing the 189
—— Northern Spy 71, 109
—— Orchards, Planting—Distance Apart 351
—— Trees, Diseased 109, 187
—— " Dwarf turned into Standards 187
—— " Moving 27
—— " Training 150
—— " " in Cold Climates 215
—— " When they Bear Fruit. 100
Apples in Gilford 151
—— New, at Goderich 70
—— Packing 148
Asparagus, Culture of 215
Autumn Foliage 25

Bark Lice, How to Destroy 148
—— Splitting ..190, 216, 288, 312, 348, 350
Beans 215
Beurre d' Anjou Pear 465
Birds and Gardens 312
Birch, The Cut-Leaved Weeping.. 69
Blackberries 418
—— Pruning 30
Bug, The Striped 312

Cauliflower Maggots 310
Cherry, Stock for Grafting the 312
Chestnut, The American Sweet.... 463
Cranberry Culture 110, 353
Curculio, The (with cut) 214
Currant Worm, The 346
Currants, Culture of 28, 148, 218
—— " and Gooseberries .. 148

Distance Apart for Planting Apple Trees 351
Does Nature Economize her Forces 196
Dwarf Apple Trees Turned into Standards 187

Evergreens for Farmers 151
—— in the Orchard 378

Farmers' Christmas Flowers 465
Fruit Growers' Association, Meetings 27, 104, 212, 304, 373
—— " Nova Scotia Apples 26
—— " Prizes Offered by 27
—— " Report of ..106, 345
—— " Western New York 306
—— in Berlin County, Waterloo .. 310
—— Enniskillen 71
—— Kent 109
—— McGillivray 100
—— North Ontario 71
—— Ottawa Region 148
—— St. Lawrence District 189
—— the Western Division of the Ontario District 461
—— Markets 269
—— Tree Dealers 67, 190, 191
Fruits in California, Flavour of.... 266

Garden, Our 352
Gardens, Our 265
Gardener's Dream, The 68
Gardening as a Profession 189
Geranium, Double 140, 269
Gladiolus 72, 377
Glass Houses, Cheap Construction of 375
Grafting Grape Vines 27
Grain in Orchards 187
Grape Crop of 1870 416
—— Culture in Canada 60
—— " Profits of 376
—— Growers, Meeting of 106
—— Market in New York City 71
—— Queries 140
—— The Sweetest 72
—— Vines for Trial 70
—— " in Central Canada 310
—— " Pruning to Death..... 71
—— Wide Planting and Long Pruning the 417
Grapes 308, 375
—— Keeping 30, 410
Grass Seed, Covering 378

Hedges 213
Hickory Nuts 464
Holyhocks, Double 312
Horticultural Exhibition, Brantford 347, 378
—— " Hamilton 268, 314, 378
—— " Toronto 108
—— Notes 410
—— Progress 67
House Plants 71
Hybridizing Pelargoniums 107
—— the Apple 189
Impositions of Tree Dealers....67, 100, 191
Improvement of Plants 66
—— of Native Flowers and Fruits. 147
Influence of Trees on Climates 67
Insects, Recipe for Destroying 218
Items....30, 72, 110, 151, 318, 253, 420

Lawn Grass Seed 378
Leaf, Work Done by a 417
Lily, Double Tiger 310
Lombardy Poplar for Windbreaks . 151

Marantas or Calatheas 349
Melons 463
Mice, Protecting Trees from...148, 187, 410, 455
Mildew on Roses 218
Moving Apple Trees 27

Nectarines, Diseased 217
New Apples at Goderich 70
—— Books 72
—— Fuchsias 266
—— Raspberries 350
—— Rose, Madame La Baronne de Rothschild 148
—— " Princess Christien 151
—— Roses 350
Novice's Balance Sheet 28
Northern Spy Apple 71
Norway Spruce for Shelter 29

Onothera (Evening Primrose) 318
Orchard, How to Get a Cheap 218
—— Not Bearing 419
—— Wind-breake 108
Orchards, Cropping 216
—— Grain in 187
—— Renewing Old 216
Our Garden 352
—— Gardens 265
—— Vines and Garden Talk 352

Packing Apples 148
Pansies from Seed 351
Peach Crop, Causes of Failure in the 150
Pears 348
Pink, Propagation of the 265

Planting Apple Orchards, Distance Apart 351
—— Trees in Leaf 217
Potatoes and their Culture 267
Preserving Fruit by Carbonic Acid Gas 318
Prize Essay, Award 143
—— on the Raspberry, Blackberry-Strawberry and Currant... 143
Pruning Apple Trees 216
—— Dwarf Apple Trees 110
—— Grape Vines to Death 71

Queen of Flowers, The 188

Raspberry, Franconia, Hardihood of 268
—— The Black 416
Raspberries 416
—— Fall-Bearing 419
—— New 350
—— Twice Fruiting 350
Roses, Twenty-four First Prize 464

Seed Crop of 1870 377
Stock, Ten-weeks 213
Storing Winter Apples 462
Strawberry Crop of 1869 29
—— Culture 309
—— Growing for Profit 377
—— Long John 312
—— Plants, Protecting 465
Strawberries 306, 346

Toad, A Word for the 410
Toads vs. Bugs 108
Tomato Vines, Training 217
Tomatoes 110, 140, 151
Trees for Shelter 140, 214
—— Street Planting 191
—— Influence of on Climate 67

Variegated Grasses 266
Vine Culture 415, 418
—— " in Australia 374
Vines and Vine Trellis 352

Washes for Fruit Trees 348
Watering the Garden 314
Weeds in Walks 217
Weeping Mountain Ash, The 465
What is a Flower? 377
—— Fruit? 378
Wide Planting and Long Pruning the Grape 417
Window Gardening 346
Wines, Air Treatment of 307
—— Second Fermentation in 310
Winter Protection 25
Work Done by a Leaf 417

ENTOMOLOGY.

PAGE.

American Entomologist and Botanist 19, 104, 223
Ants as Hosts 58
—— How to Destroy 235
Apple Tree Bark Louse 194
—— Curculio 337

Bee Hawk Moth 337
Beetle, Colorado Potato..138, 296, 299, 337, 340
—— " " Onward March of 337
—— Potato 138, 299
Beetles, Carrion 112
—— Live 139
—— Scavenger 188
—— Water 17

Cabbage Butterflies 111
Carrion Beetles 112
Caterpillars 335, 337
—— Destroying Carrots 336
—— Various 336
Cattle Fly, The 335
Cecropia Emperor Moth....58, 272, 336
Colorado Potato Beetle ..138, 296, 299, 337, 340, 379
—— " " Onward March of 379
Cricket and Hair Snake 336
Curculio, The 214, 274
—— Apple 337
—— Exterminating 270
—— New Treatment of 296
—— Trapping 298
Currant Worm, Black 335
—— Parasite 19, 113
—— To Destroy 235
Cut Worm Eater 274

Death of the State Entomologist of Illinois 23
Divaricated Buprestis 425
Dutch Doctor's Insect Remedy 425

Emperor Moth, Cecropia 272, 336
—— Cocoon 58
—— Luna 272
—— Polyphemus 272
Entomological Gleanings 423
—— Queries and Replies.....271, 299, 336, 425
—— Society of Canada 23
Entomology, Value of 234

Galls on Wild Raspberries 235
Grape Seed Insect 18
Grape Vine Flea Beetle, The 455
Grub Killer, A Cheap 139

Hair Snakes 273, 336
Hessian Fly 287
Hop Louse 380
Horned Fungus Eater 425

Insect Destroying Association 59
—— Depredations 369
—— Grape Seed 18
Insects Affected by Colour 113
—— How to Collect 233
—— Imported and Native American 136
—— "New Species" of 113
—— Recipe for Destroying 218
Io Moth Caterpillar 336

Measuring Worm 299

"New Species" of Insects 113
Noxious Larvæ 297

Onward March of the Colorado Potato Beetle 379

Parasite on Caterpillar 274
—— on Saw Fly Currant Worm 19, 113
Pea Weevil 137, 425
Pine Beetle, The Six Ribbed 19
Poisonous (?) Tomato Worm, The. 380, 455
Poplar Tree Caterpillars 299
Potato Beetle 138, 296, 299, 337, 340, 379
—— Sphinx 424
Precautions against Noxious Insects 232

Rape Butterfly, The 456

Silk Worm Culture in America 192
Slug on Pear and Cherry Trees 424
Spider and Wasp 337
Squash Bug 113
State Entomologist for Minnesota. 59
Stick Bug, The 18, 336, 337

PAGE.

Thousand Legged Worm 337
Toads vs. Insects 208
Tomato Worm 58, 380

Vapourer Moth 425

Walking Stick Insect 18, 336, 337
Water Beetles 17
Who 'd be a Butterfly? 270
Wood Borer 209

APIARY.

Amateur Bee Culture 32
Artificial Impregnation 152, 338, 384

Bee-Hives 78, 426
—— Keepers' Association, Annual Meeting 395
Bees, Impregnation of 152, 338, 384
—— Killing Drones 209
—— Mortality among 209
—— Smoking 78
—— Their Nature and Habits 114, 194, 235, 269, 300
Beware of Humbuge 385

Early Swarms 270

German Bee Convention 236

Half-breeds vs. Native Bees 32

Italian Bees, How marked 32

Productive Honey Season 384

Smoking Bees 78

Ventilation of Stocks in Winter 338

Whence Came our Honey Bees? 385
Wintering Bees 32

RURAL ARCHITECTURE.

Building Lime 309
—— Houses without an Architect 466
Design for a Farm House 12
—— for a Hill-side Barn 173
Foundation of Houses on Sand 437
Painting Brick Buildings 216
Saddles to Chimneys 354
Varnishing 173
Whitewash for Walls 173

NATURAL HISTORY.

PAGE.

Pet Toads 157
Protecting Crows 199

Sparrows in Quebec 35

Tortoises 105

THE HOUSEHOLD.

Birds' Nests, Household Ornaments 274

Canning Fruit 314
Care of Paint and Varnish Brushes 197
Cellar Walls, Damp 75
Cellars, To Keep from Freezing 35
Cheap Filter 355
—— Wash for Buildings 35
Child's Corner 467
China, Mending Broken 296
Cider Making 354
Clean Old Musty Barrels, To 110
—— Paint, To 35
Coal, Hints on the Use of 34
Cruelty to Animals 196
Curing Meat 35

Drainage of Houses 75
Dry Cellars and Door Yards 154
Dyeing, Receipts for 197

Earth Closets 155, 310, 355
Ease in Society 76
Eggs, Preserving 385

Farm Gongs 354
Farmers' Daughters 467
French Rolls 110
Fried Potatoes 35

Hard Water, To Soften 275
Home Influence and Recreations 195

Lightning Rods 315

Marble, To Clean 237
Oiled Floors for Kitchens 275

Painting and Oiling Furniture and Floors 353
Paste that will Keep 467
Pork, Salt, To Make Sweet 385

Rat Life, Incidents and Habits of 237
Rats, Catching 110
Recreation 33
Roaches, Remedy for 355

Saddles to Chimneys 354
Starch, Making 33
Straw Hats, To Whiten 315

Washing Fluid, A 236
Working Dress for Farmers' Wives and Daughters 155

MISCELLANEOUS.

PAGE

An Old Farmer's Experience 239

Bag Holder 230
Bear Hunting Extraordinary 470
Brick Buildings, How to Paint 238
Building Lime 309

Clippings from a Farmer's Account Book in 1750 238
Coal Ashes for Earth Closets 319

Denominational Oxen 438

Extracting Wheel Grease 436

Farm Gongs 358

Grain Exchange of the World, The 438

Interest, Henry Ward Beecher on 390
Items 471

Keeping Tires on Waggons 239

Lightning Rods 315

Mad Animals 237
Mechanical Items 470
Model Tool-house 470

Novel Application of the Sewing Machine 309

Pet Toads 157
Prevention of Rust 230
Protecting Crows 199
Pumps, Repairing 76

Shingles, To Prevent Decay in 471
Sparrows in Quebec 35
Steel To Preserve from Rust 70
—— Welding to Iron 76

Tanning Sheep Skins 470
Timber Charring 238
—— Durability of 35
—— Shrinkage of Seasoned 270

"Victoria Stone" 270

Weather Glass, A Simple 310
Wool Product of the World 438

POETRY.

A Dream of Summer 274
Art Thou Living Yet? 353

Bringing Sheaves 315

Departed Days 110

Flowers 274

Old Age 353

Sea Ventures 466
Shetland 105
Step by Step 237
Sword and Plough 385

The Lights of Evening 70
—— Loved not Lost 237
—— Stream that Hurries by 110
—— Winter Snows 466
Three Roses 110

Which? 155
While Snows are Falling 35

ILLUSTRATIONS.

Apple Curculio, The 337

Cabbage Butterflies 111
Clovers, The 234
Colorado Potato Beetle, The 296
Curculio, The Plum 214
Cut-leaved Weeping Birch 69

Design for a Farm House 12
—— for a Hill-side Barn 172
Double Geraniums 140
Drainer's Level 123

Emperor Moth Cocoon 53
—— Moths—Cecropia, Polyphemus, Luna 272-3
Girdled Trees, Scions for 187

Hedges 1, 2
Holstein Bull 85

Maranias or Calatheas 349
McMendean Leicesters 369

Pea Weevil 137
Points in the Horse 40
Poplar Tree Caterpillars 299
Potato Beetle 139
—— Sphinx 424

Rove Beetle or Cocktail 138

Sexton Beetle 112

The Grape Vine Flea Beetle 455

Water Beetles 71
Weeping Mountain Ash 465

1871.) PROSPECTUS (1871:

OF

THE WEEKLY GLOBE.

THE GLOBE PRINTING COMPANY gratefully acknowledge the support extended to their several publications throughout the length and breadth of Canada during the past year, and especially to THE WEEKLY GLOBE. Twenty-seven years have rolled by since the establishment of THE GLOBE in Toronto. From its first appearance to the present hour its prosperity and influence have been always advancing; but at no time has it ever before held so firmly, or so satisfactorily, the position universally conceded to it, as the leading newspaper of British America.

The improvements recently made on THE WEEKLY GLOBE have immensely extended its popularity and circulation; and the publishers confidently claim that it is not only the most widely circulated Journal in British America, but that it is

The Largest, the Handsomest, the most Carefully Conducted,

AND THE

Cheapest Weekly Paper on this Continent.

During the coming year—which is likely to bring with it important events affecting the political and material interests of the Dominion—the Editorial and News Departments will continue to be sustained with the ability and vigour that have gained for the paper its present position. A reliable summary of the Debates in the Dominion Parliament and the Provincial Legislatures will always be found in its weekly columns; and the news from all parts of the world will be published up to the latest hour of publication.

THE GLOBE will continue to advocate with all energy, as heretofore, ECONOMY IN EVERY DEPARTMENT OF THE PUBLIC SERVICE—a generous system of immigration—the rapid settlement of our wild lands—the prompt opening up of the great North-western Territories—the vigorous development of our fisheries, and of the mineral and agricultural resources of our country,—and the removal of all obstacles tending to retard the progress of industrial and manufacturing enterprises. It will continue to strive earnestly for the improvement of inland navigation, the adoption of a well-matured Homestead Law, and the throwing open of the wild lands of the country FREE to actual settlers. It will continue to cultivate the most friendly relations with the neighbouring Republic; and will hail with pleasure a new Reciprocity Treaty, but only on terms fair and honourable to both countries.

THE AGRICULTURAL DEPARTMENT,

That has given such universal satisfaction this year—and that is acknowledged by every farmer to be alone worth the subscription price of the paper—will be maintained in 1871 with undiminished interest, under a still more efficient staff of editors and correspondents than before.

SEVERAL NEW AND EXCITING TALES,

From the pens of popular authors, will appear during the year. No expense will be spared in securing the very latest intelligence by means of **Special Telegraph Dispatches, Market Reports, Prices Current, and General Commercial Intelligence,** from all parts of the world, will receive unremitting attention. Every department of the paper will be maintained in the highest state of efficiency.

Notwithstanding the great enlargement and improvement of the WEEKLY GLOBE that have recently been made, the subscription will continue to be only

TWO DOLLARS PER ANNUM,

Payable always in advance—and the following will be the

Club Rates for 1871.

A Club of Five Copies, one year			$ 9 00
Do.	Ten	do.	17 00
Do.	Twenty	do.	32 00
Do.	Thirty	do.	45 00

And each additional copy over thirty, at $1.50.

LARGE PRIZES

Are given to parties who get up Clubs, a list of which will be sent to any one who will apply for it by letter or personally at the Office. Any one is at liberty to get up a Club on his own responsibility; and those desiring to do so should send at once for a Circular showing the terms.

Club Agents can send in names from time to time as they receive them, and their Prizes will of course be determined by the numbers they ultimately make up.

To facilitate the work of Canvassers, all parties subscribing (in a Club or otherwise) between 1st December, 1870, and 1st January, 1871, will have the paper sent to them up to 31st December, 1871, on payment of a year's subscription.

Payment must always be in advance. No paper sent from the office until the cash has been paid.

Each paper shall be addressed separately, and may be for any Post Office.

Orders and Remittances to be addressed to

The Globe Printing Company, Toronto.

1871 PROSPECTUS 1871

OF

THE CANADA FARMER.

OFFICE EDITOR—J. E. ELLIS, Esq., M. R. C. S., England.
HORTICULTURAL EDITOR—D. W. BEADLE, Esq., St. Catharines.
SPECIAL CONTRIBUTORS—Professor BUCKLAND, E. L. CULL, Esq., J. A. CULL, Esq., C. E. WHITCOMBE, Esq., M.R.A.C., England.
DRAINAGE EDITOR—ALAN MACDOUGALL, Esq.
ARCHITECTURAL EDITOR—JAMES SMITH, Esq., A. M.
ENTOMOLOGICAL EDITOR—REV. C. J. S. BETHUNE.
VETERINARY EDITOR—ANDREW SMITH, Esq., V. S. Edin.
APIARIAL EDITOR—J. H. THOMAS, Esq., Brooklin.

The conductors of THE CANADA FARMER will continue to labour earnestly for the following ends:—

To arouse attention, by frank and temperate discussions, to all questions, scientific, commercial, legislative or otherwise, specially affecting the farming interests.

To stimulate the agriculturists of our country to adopt an improved system of husbandry, by blending the lessons of modern science with the practical experience of the Canadian farmer.

To bring under the attention of our farmers all improvements at home and abroad, worthy of adoption, affecting the management of Field Crops—the Barn Yard—the Stable—the Dairy—the Orchard—the Poultry Yard—the Apiary—the Kitchen Garden—and the Flower Garden; and to excite an interest in the progress of Rural Architecture and Landscape Gardening, and all that concerns the domestic economy of the Farm House.

To mark and report all improvements in Agricultural Machinery, foster new inventions, and promote the adoption of all labour-saving machines, in the work of the farm and garden.

To keep prominently under attention all that specially concerns the Dairy Farmer and the Grazier—the best breeds of Cattle—the best systems of feeding—the most approved processes of cheese and butter making—the best mode of packing—and the best markets to sell in.

To keep prominently in view whatever is specially interesting to the Sheep-raiser and Wool-grower—the breeds best adapted to our climate—the best system of winter and summer management—and the varying prospects of the wool market.

To afford the Farmers of Canada an ever-open medium for addressing their brother Agriculturists throughout the Dominion, suggesting matters of common interest and advantage, and eliciting information or advice on practical questions of difficulty or doubt.

To report concisely the proceedings at Agricultural Shows, Fairs, and Sales, throughout the Provinces—note the condition and progress of the Herds and Flocks of prominent Stock-breeders; and record the importation of Thorough-bred Stock from abroad.

To watch and report carefully and promptly the actual state and probable prospects of the Produce markets, at home and abroad; and specially promote all movements designed to secure the best prices in the best markets for Canadian Farm Produce.

To afford the Farmers of the Dominion a common medium, where all who have for sale Live Stock, or Seed, Grain or Land, or who may wish to buy such, can make their desires known directly to the whole farming population of Canada.

THE CANADA FARMER will continue to be issued on the fifteenth day of each month,—the form will be the same as now—and each number will contain

FORTY PAGES OF READING MATTER.

The Price will continue, as heretofore,

ONE DOLLAR PER ANNUM, FREE OF POSTAGE.

CLUB RATES FOR 1871.

CLUB OF TEN COPIES	$ 9 00
CLUB OF TWENTY COPIES	16 00
CLUB OF THIRTY COPIES	22 50

☞ And all over 30 at 75 cents per copy.

Letters and remittances to be sent to

THE GLOBE PRINTING CO.,

TORONTO, ONT.

TORONTO, 1st Dec., 1870.

special business to keep it cleaned off, the final destruction of the bridge by decay seems imminent.

One old mare stuck to the bridge until she was nearly starved, rather than expose herself to the flies on the lower ground, and her owner had not only to drive her to her feed, but to keep her there.

The same observation has been made in regard to other high bridges, the centre of which has, during the fly season, been crowded with cattle, who persistently returned to their station even after they were driven away.

VECTIS.

Beet Sugar Making.

A correspondent from Brighton writes:—"As I intend to establish a sugar beet refinery, I would like to enquire if there is any sugar beet refinery in the Dominion, or in the United States, where I could learn the business of refining."

The only sugar beet factory to which we can direct our correspondent is that at Chatsworth, Illinois, U.S. This, we believe, is the only one that has been in operation, for some years, but we warn our correspondent that there has been more progress made in the knowledge of the various ways of making sugar from beet root, during the last four years, than in any previous ten. Science and chemistry are at work, and have been actively called into operation by the remunerative profits of the business in England, and it is more than probable that any old-fashioned factory may be far behind the age and time. We do not know that there may not be many modern improvements here also, but we have heard that the enterprise as conducted at Chatsworth does not pay; but this *may* depend, and probably does in part, on the difference between beets grown on prairie land and elsewhere.

TEETH A TEST OF AGE.—"Subscriber" asks, "Is it uncommon for Merino shearling ewes to have four broad teeth? or, in other words, do cases occur in which Merino (or other sheep) have four broad teeth when only one shear?" The number and development of the teeth are among the surest and most constant marks of the age of any animal, but like all other signs, are liable to variation. Some animals grow faster and mature much earlier than the average of the same species, and all writers on the subject refer to exceptional instances in regard to the appearance of the teeth. Randall says, "There is sometimes a variation of a number of months or even a year in the development of the teeth. High kept and rapidly grown sheep acquire their second teeth much earlie."

MUSHROOMS.—J. M. asks "How is a mushroom distinguished from a toadstool? and is there any way of propagating the former?" The edible mushroom, when it is from eight to twelve hours old, has beautiful pink or flesh-coloured gills—that is, the under side of the crown is of that colour, and has a fresh sweet smell. As it gets older, these gills turn chocolate colour, and finally almost black. The appearance then more nearly approximates to that of some poisonous fungi. But the place of growth may assist in distinguishing them. Mushrooms grow in pastures or meadows, the fungi resembling them in woods, and these have besides an unpleasant sickly odour. The following test is also, we believe, correct. If you sprinkle a little salt on the gills, and they turn yellow soon after, these should not be eaten; if they turn black, they may safely be eaten. Our correspondent will find directions for artificially growing mushrooms in the September and December numbers of the CANADA FARMER for 1869.

WESTERN WHEAT.—A correspondent asks, "Can you or any of your readers inform me whether the Milwaukie or Kansas wheat, now being largely imported by our millers, would be a safe seed for Canadian soil?" We have not seen any of this wheat, but should suppose it was of a very mixed kind, not adapted for seed. Perhaps some of our readers can give information on the matter.

The Canada Farmer.

TORONTO, CANADA, DEC. 15, 1870.

The Volume for 1870.

The present number of the CANADA FARMER will complete the second volume of the new series, and the seventh since its commencement in 1864. It has been the aim of all connected with its publication to promote the important objects for which it was established, by taking note of the general progress of agriculture and kindred departments of industry, and by affording to Canadian agriculturists a medium of intercourse with one another, for discussing subjects of common interest, and comparing the results of their experience. Above all, we have endeavoured to impress the farmer with a higher sense of the dignity of his calling, and so to elevate it from a mere mechanical toil to a science, in which there is ample scope for the energies of the mind, as well as the exercise of manual labour and skill. How far these objects have been attained it is for our readers to pronounce. We have reason to be gratified and encouraged by the continued interest manifested, the increasing circulation of the journal, and the evidences of appreciation and approval in the contemporary agricultural press both of this continent and of Great Britain.

In the volume now completed, among other features of interest, special prominence has been given to the cultivation of the Beet and the manufacture of Beet Sugar, because this industry has not only for many years exerted an ameliorating influence on Continental agriculture, but has been introduced with marked success into Great Britain, where, within the last year or two, immense improvements have been effected in the processes of manufacture, and we are desirous of seeing a fair experiment made in Canada, believing that there is nothing in the character of our soil, or climate, or market, to prevent the success of such an enterprise.

Attention has also been directed to the great progress manifested during the past year in the improvement of live stock; particularly in the breed of Short-horn cattle. Numerous and valuable importations have been made, a large proportion of intelligent farmers are practically recognizing the value of pure blood, and the number of choice herds and flocks now owned by Canadian breeders, cannot fail to raise the general character of live stock throughout the country.

In the coming year we shall keep these and other subjects of like importance steadily in view; and no pains will be spared to render the CANADA FARMER acceptable to our subscribers. We cordially invite their co-operation, and hope to number among them many new friends.

The terms for Agricultural Societies and Clubs, as published elsewhere in the prospectus for 1871, will continue on the same liberal scale as heretofore.

Farmers' Clubs.

Now that the long winter evenings are coming, and the farmer, having shorter working hours, can give time and attention to the endeavors to gain or impart information in regard to matters connected with his calling, every effort should be made to organize and keep up a Farmers' Club in each ward of a township, or each considerable village having a good farming country adjoining it. The school-room of the ward would be a good place at which to meet. If that cannot be had, let the members take turns in gathering at each others' houses once or twice a week. We have already given in times past an outline of the mode of proceedings to be adopted in organising and carrying out a farmers' club, and in fact, they may as well be made as free from rules and regulations as possible, so that each one will feel under no restraint, but be at liberty to come forward and speak on whatever topic is brought under discussion by the one who is in the chair for the evening. Don't talk all at once, or keep up a general conversation in quiet corners with one another, but let everything that is said be directed towards the general enlightenment of the club, and be listened to with respect; and when one speaker has sat down, a short interval may occur for general discussion before the next is called on to address the meet-

ing on the subject brought forward. Such a club can be made of great benefit to a neighbourhood in many ways. Among others, they can put each other on their guard against any patent right swindler, and tricksters of every sort who may come into the neighbourhood, and who often succeed in their designs through falsely using the name of one neighbour to another as having purchased, or subscribed for their worthless trash. They can also gain much information from one another's experience in growing new sorts of grain, breeding and feeding stock, and the practical working of implements of husbandry of different patterns. When the club becomes large and influential it may prove both useful and desirable to have a secretary to report discussions, and forward notes of the most important ones to the local paper of the district, or the agricultural press.

Let the thing be tried, and persevered in, and by means of so simple and inexpensive a course of procedure, it will be found that a vast amount of practically useful information might be given to the country.

Re-organizing Farm Life.

One of the very best and most practical addresses ever delivered was given by Prof. A. A. Hopkins, of Rochester, N. Y., before the people at the Western New York Fair. From it we make a few somewhat lengthy extracts which ought to be read and acted upon by every farmer throughout the land.

"*Farmers' homes are boarding-houses for hired help, and Farmers' wives are almost bond-women. The larger the farm, the worse the servitude.*"

"Look about you, everywhere, and see if the facts do not corroborate this statement. 'Boarding-houses for hired help' accurately describes the generality of farmers' homes. On a farm of two hundred acres, more or less, there are usually two or three labourers by the month, and as many more by the day, perhaps, in the busiest season. These, as a rule, board with their employer. That his wife is almost a bond-woman follows, as a matter of course.

"How can she well be otherwise? From March to December any way—very likely the whole year round—there is the hired help tying her at home. Her good man goes off the farm every day nearly—to the mill or the post-office—and feels a lessening of the burden in social intercourse with his fellows; she labours on, day in and day out, week in and week out, fortunate even if she get to church on a Sunday; the hardest worked person in the whole family; the one whose abour is never done; the one whose toil has smallest compensation.

"There is no sadder picture anywhere than some farmers' wives I have seen. The look of *weariness* on their faces is eloquent of sighs—sighs for a happy girlhood gone, for a life with somewhat in it sweeter than drudgery. Do they complain? Rarely, to their husbands. They are good wives, as the term goes; they accept their burden, and bear it bravely as they may, with no loud-voiced lamentings.

"We whose work is for the public, and whose duty it is to help right every wrong, get letters from them, sometimes, that are full of the heartache. They write to us what they seldom give utterance to otherwise—their discouragement, almost their despair.

"They tell us how, in the years intervening since their marriage morn, Toil and his twin-brother Care have held them captive continually; how their husbands, by constant contact with the outer world, have grown into a broader life, while theirs has narrowed down to the kitchen's confines; how they feel themselves becoming a less and less fractiou of the married unit, instead of keeping even growth with their companions; how they long for a wider outreach, and a nobler, more satisfying life.

"And these are not the women whose desired broadening of being takes in the pulpit, the platform, or the polls. Their aspirations are not of that character, at all. What they do wish, what their patient long-suffering should entitle them to, is such a reorganization of the home-life as will give them some leisure for personal comfort, personal culture, and personal growth.

"'Is it possible?' comes the question. It is proved so, in many instances. 'I have always boarded my help until the present season,' said a farmer to me early this summer, 'but I shall never do it again. I built a tenant house yonder,' and he pointed to a neat little domicile twenty rods from his own, 'and it has paid its cost already in the added privacy and quiet it has enabled me to enjoy, and in the great lessening of work for the women folks.'

"Tenant houses will pay their cost always—will pay it directly, in dollars and cents, in the long run; will pay it indirectly, in the manner my friend indicated, within the first year. Every farm, large enough to require help the season through, should possess one.

"It is not quite clear to me that woman's millenium is coming through the ballot, but I am morally certain that something very like a millenium will come to many women by the general erection of homes for hired help. The good time is coming, ladies; you must call upon your husbands to fix the date!

"I preach the sweet gospel of Hope to every troubled matron who, like Martha of old, is cumbered with much serving, and bid her take heart again. There is to be somewhat besides 'eternal dishwashing' in your future—somewhat besides the never-ending round of washing, baking, churning, ironing, mending, and the like. It may not be the suffrage—I almost hope it will not, for your sake, and for our sakes, to whom Ruth is the sweetest type of womanhood, and who would have you remain a Ruth for ever—but it will be a somewhat better than suffrage, be that never so good. It will keep the light in your eyes and the love in your hearts, and under its kindly influence you shall grow younger, as the years go on, until, a happy girl once more, you sit beside your Boaz on life's harvest eve, glad with abundant gleaning, grateful for your being and its fruits, your home a pleasant foretaste of that heaven beyond the twilight.

"Such a reorganization of home-life on the farm as I could wish wrought out would comprehend much more than the building of tenant houses. While that might be the initial step in many cases, the work would extend further by far, and would touch very nearly the home's centre."

Diseases of the American Horse.

A new work, under this title, has been issued by R. McClure, V.S. It is a small octavo of over 400 pages, and contains in concise form a large amount of valuable information on the nature and treatment of equine ailments. There is also a short account of cattle diseases, and a brief notice of some of the more common disorders affecting sheep. The arrangement of the subject is novel, the various topics being taken up in alphabetical order, without any regard to their relations. We do not admire this feature of the work. An index of reference would have served all the useful purposes of such an allocation, without violating all the mutual bearings of diseases and their organs. The author is, however, well acquainted with his subject, and fully qualified to give instruction. The descriptions and directions are plain and brief, and the treatment recommended sound and practical. The work is published by John E. Potter & Co., Philadelphia.

Constitution and Bylaws of a Farmers' Club.

We have often received applications from Secretaries of Agricultural Societies and others, to furnish some guide or instructions for framing the rules of a farmers' club, and have replied to such correspondents that no special rules were necessary, that the organization was of the simplest, and that the circumstances of the locality would suggest the most feasible methods of carrying on the institution. The following specimen of the rules of a Farmers' Club actually in operation may, however, be of service to those about to form such a society. There is nothing worthy of note about them, and each club will make modifications from any set form to suit all its own requirements; and we publish these only because we have so often been consulted on the subject, and the following simple form may be a guide to the inexperienced in such matters:—

CONSTITUTION.

I. This organization shall be known as the ——— Farmers' Club.

II. Its object shall be the improvement of the members in the theory and practice of agriculture, and the dissemination of knowledge relative to rural and household affairs.

III. Its members shall consist of such persons as shall sign the constitution and by-laws, and pay annually the sum of ———

IV. Its officers shall consist of a President, (two) Vice-Presidents, Secretary and Treasurer, who shall jointly constitute the Executive Committee, and shall be elected annually.

V. Its meetings shall be held weekly, (fortnightly, or as the case may be), at such places as may be designated by the Club.

VI. This constitution may be amended at any regular meeting by a majority of the members present, said amendment having been proposed at the previous meeting.

BY-LAWS.

I. The President shall preside at all meetings of the Club and Executive Committee, and have power to call special meetings.

II. One of the Vice-Presidents shall perform the duties of the President during his absence.

III. The Secretary shall record the proceedings of the Club and conduct its correspondence.

IV. The Treasurer shall receive all moneys, and pay the same on the written order of the President, countersigned by the Secretary.

Report of the U S. Commissioners of Agriculture for 1869.

We have received from the Hon. Horace Capron, Commissioner of Agriculture for the United States, a copy of the report of the Agricultural Department for the year 1869. Though issued somewhat late, the volume nevertheless contains so much matter of permanent interest that it will prove a valuable acquisition to any agricultural library. The compilation presents some features of novelty, as compared with similar reports in previous years, and is in many respects a decided improvement upon them. Besides the general summary of the Commissioner himself, there are other valuable reports from the statistician, the entomologist, the chemist, the botanist, the superintendent of gardens and grounds, and an elaborate paper on agricultural meteorology, by Andre Poey, which will well repay an attentive study. In the place of the usual essays or monographs of former years, the editor, J. R. Dodge, has compiled a number of interesting papers on some of the most important subjects connected with agriculture and horticulture. We may instance Landscape Gardening, Fruits, Seeds, Steam Culture, Beet Root Sugar, American Dairying, and a number of other equally interesting matters. From some of these valuable articles we hope, at a future time, to draw largely for the information of our Canadian readers. The work is illustrated with a number of engravings, which add to the intrinsic value no less than the attractive appearance of the volume.

Report of the Michigan Board of Agriculture for 1869.

The eighth annual report of the Michigan Board of Agriculture for 1869, a copy of which we have received from the Secretary, Sanford Howard, contains, besides an account of the Michigan State Agricultural Society, a report of the Michigan Agricultural College, and notices of some interesting experiments conducted by this valuable institution, and some admirable essays which have excited prominent attention during the year, such as a paper on wheat and its cultivation by the Hon. Geo. Geddes, European Agriculture, by Mr. James Howard, the prize essay on cheese, by Mr. Arnold, of Ithaca, Professor Law's paper on the feeding of cattle, a brief report by Messrs. Baker on cheese dairying, or the factory system, and a paper on long-woolled sheep. There is also appended a report of the Western Michigan Lake Shore Horticultural Association. Altogether, the volume is, as usual, full of valuable instruction of special interest to the agricultural reader.

Artificial Manures.

We notice by the report of the Chemical Committee of the Royal Agricultural Society on Adulterated Manures and Feeding Stuffs which has just come to hand, that the farming public of England is imposed upon to an extent far greater, so far as we can judge, than we in this country are. Professor Voelcker has been analyzing these vile compounds, sold often at high prices, and the composition and utterly worthless quality of some of them would be subject of amusement, were it not a matter of too serious importance to the farmer who buys. A sample of bone manure contained only one per cent. of phosphate of lime and one per cent. of nitrogen. It was made up chiefly of gypsum and some cheap organic refuse, impregnated with sulphuric acid. It cost four and a half pounds sterling per ton, and was worth less than a pound and a half. Other specimens were still worse. Carbonate of lime and fine sand were mixed in largely.

Now genuine bone dust or bone meal contains forty-eight per cent. of phosphate of lime, and yields four and a half per cent. of ammonia and no amount of sulphate of lime. All additions of the latter are cheats.

There is also a remarkable falling-off in the quality of recently imported Peruvian guano. It contains much rock or sand. The supply on the Chincha Islands is probably running rather short. The British farmer is terribly imposed upon in the article of commercial manures.

Editorial Notes.

During the first week of November, we visited some of the western counties, along the line of the Great Western Railway. Owing probably to the very mild favourable weather we have enjoyed this autumn, the work of gathering in the root crops had hardly yet commenced, and even in many orchards the apple trees were still loaded with their fruit. The Indian corn crop, so far as we could ascertain, is one of the best ever harvested in Canada, both as regards the quantity and quality, and the stalks have been saved in such excellent condition that with proper after-care they must form quite an item in the way of food for stock to many farmers, which is a matter of consequence owing to the somewhat short hay crop caused by the dryness of the early part of the summer. It will be well for those who have corn stalks on hand to endeavour to make the most of them, by cutting and steaming before feeding out to their cattle. The addition of a little barley or pea meal to the steamed mess will go a great way towards inducing the stock to eat it all up clean; and corn-stalks, if well saved, are much more nutritious than the best straw that can be had.

A large breadth of winter wheat appears to have been sown, and most of it is not only put into ground that is in capital order for the production of good wheat, but has been sown at an earlier date than usual, and owing to the favourable season the wheat plants appear to be remarkably strong and healthy, and the ground well covered. In fact, in some instances the wheat had attained somewhat too rank a growth and appeared thicker on the ground than there was any necessity for at so early a stage of its growth. With a favourable winter and enough of snow to prevent the destruction of this crop by severe frost, and a dry summer after, we may anticipate that the yield next year will be one of the heavisst ever gathered in Canada. The success of this crop during the past three years, since that once dreaded scourge, the wheat midge, has abated its ravages, has induced our farmers to be more careful in preparing their land, and hopeful of the results of their labours.

A short trip into Michigan showed a wonderful contrast between our neighbours' system of farming and ours. The absence of root crops was most marked, while the presence of so many undrained swamps and almost stagnant rivers showed evident cause for the general prevalence of ague and other malarious diseases that are the bane of the settler in those western wilds. The corn fields seemed, as compared with ours, to be but half cultivated, and several appeared to have a heavier crop of weeds than corn on the ground, the weeds in some instances overtopping the corn in height; and it was a marvel how the farmers there could allow them to ripen such a

heavy crop of foul seeds to spread over the land, and rob it of its riches.

The country over portions of western New York presented an agreeable contrast to the state of things in Michigan. Here we find well-cultivated farms, good buildings, and along the line of New York Central Railroad, for 100 miles eastward of the Falls of Niagara, a fine fruit region, with large orchards well loaded with the finest fruit. The operation of a new cattle law, prohibiting stock from running on the highways, has resulted in some farmers entirely removing their fences from the road-side; and as one consequence of the highways being no longer kept in order by the grazing of stock, they were fast becoming overgrown with weeds, which seemed to be allowed to ripen their seeds unchecked, and so form the nucleus for distributing foul weeds over the fields. This might be easily avoided, if it were made compulsory to destroy them before they blossomed, or by seeding down the road-sides to clover or timothy, and allowing the farmers to cut it as hay. It will come to this in time, when they find out the evil of the other course of allowing them to become the nursery for weeds. On the whole, wherever we went, we saw evidences of improvement in the system of cultivating the soil. Much of this is due to the introduction of better and labour-saving machinery on the farms; but still more, we think, to the wide circulation of agricultural journals, inducing more thoughtful care in the management of farms, more attention to the rotation of crops, and a more liberal expenditure of capital in manures and improvements, instead of hoarding it up at small interest in the banks.

The pleasantest experience we enjoyed during our trip was a short visit to Moreton Farm, near Rochester, N. Y., the residence of Joseph Harris, well known as the writer of "Walks and Talks" in the *American Agriculturist*. Six years ago he purchased at a cheap rate 285 acres of the poorest and most worn-out farm in Western New York. By means of under-draining and good cultivation he has brought this farm to be one of the richest and most productive in the state. It was originally covered with stones and boulders, the soil being naturally good, but in a sadly neglected condition. The boulders have been blasted out, the stones gathered up and made to do work as fences, there being already many dry stone walls built on the farm. The finest crops of clover, corn, and wheat are raised, and what was once a desert now blooms as a rose. This has all been accomplished more by good management, than any lavish expenditure of capital for artificial manures or high farming. Under-draining, deep ploughing, and growing clover to be fed off by sheep, have been the principal means used. Mr. Harris's flock of Cotswold sheep are of the finest quality as regards their wool we have ever seen. The lambs of this year are especially so, and they are being bred with the object of getting sheep that shall yield a fleece of the softest and finest combing wool it is possible to obtain. They are not kept up to the high condition of flesh our breeders usually admire, consequently do not attain heavy weights, but they are thrifty and healthy. The Essex pigs on the farm are the finest we ever saw of the breed, and some cross-bred spring pigs, by an Essex boar from a Berkshire sow, seem remarkable specimens of porcine thrift and beauty. They will go over 300lbs each by Christmas. Does the farm pay? Mr. Harris pays high wages, but gets the best men that can be had, and is quite satisfied that the farm not only pays well, but is the best investment he ever made. It has trebled in value since he bought it, and his crops are steadily increasing in yield every year. He has besides set such a good example to his neighbours that they are beginning to stir up and go and do likewise. The story of his doings on this farm, as given in "Walks and Talks," has done more to awaken an interest in the improvement of agriculture in the United States than anything ever yet written.

Notes on the Weather.

The mild Fall weather which characterized the early part of the season has continued throughout the month of November, and judging from one's agreeable impressions of the pleasant temperature, contrasted with the vivid recollections of the cold of last year during the corresponding month, one would be disposed to pronounce the November of the present year as exceptionally mild, if not warm. The records of the Observatory, however, would correct this idea, and show that the month, pleasant as it has been, can only claim an average character as regards temperature. Indeed, the mean has been a trifle below the average of the last thirty years. The amount of rain-fall or snow has been less than usual. Very little of the latter, except on one occasion, has fallen in the neighbourhood of Toronto, but in other districts west and east, as well as towards the north, where it would be earlier looked for, there has been a considerable fall and some sleighing. A more favourable season for maturing and harvesting root crops could not have been enjoyed, and we suppose such a thing as a lost turnip crop, from being frozen into the ground or covered with snow, will not be heard of this year in the Province.

The records of the Toronto Observatory already referred to show that the mean temperature of the month has been 36.6, which is 0.1 colder than the average, but 3° 9 warmer than the mean temperature of last November.

The highest temperature was 57° on the 2nd instant, which was also the warmest day, with a mean of 49° 6. The greatest degree of cold occurred on the 22nd, the mean temperature of which was 27° 4, and the lowest 19° 4.

Rain fell on six days to the total amount of 0.594 inch, being 2.576 less than the of 0.594 inches, being 2.576 less than the averages.

The total amount of snow was 3.1 inches, being slightly below the usual quantity, and as much as 7 inches below that of November, 1869. The first snow of the season fell on the 10th of the month.

There have been 5 clear days, 16 partially clouded, and 9 entirely so.

The prevailing winds have been from the west.

The Horticulturist.—This long established and excellent periodical maintains its reputation as one of the best horticultural authorities in the United States. It is well printed, beautifully illustrated, and full of useful practical instruction. The publisher is H. T. Williams, New York—the price $2per annum.

Mr. Gibb, of Compton, has again added to his fine herd of imported Ayrshires. The last arrivals of which we have heard consisted of Lady Avondale, who gained the first prize at the Highland Society show this year; May Bell, also the winner of several prizes; Mary, Miss Meikle, Blooming Daisy, and Heather Bell—all prize winners. Other cattle were on the way when these arrived, and have no doubt before this reached their destination. Mr. Gibb seems determined to introduce the best class of Ayrshires into the country.

Hearth and Home.—This deservedly popular agricultural and family periodical has passed from its late proprietors into the hands of the enterprising publishers, Orange Judd and Company, and is now issued from the office of the *American Agriculturist*. Its price is also reduced from $4 to $3 per annum (Am. currency.) It is conducted with spirit, admirably illustrated, and contains, besides agricultural and horticultural matter, a summary of news, popular tales, and other matter of general interest, making it a welcome family paper in rural districts.

Transactions of the Wisconsin State Agricultural Society for 1869.—Our acknowledgments are due to the Secretary of the Wisconsin State Agricultural Society for a copy of the report for the year 1869. The volume contains a brief account of the condition and progress of the State and the proceedings of the Society during the year, together with practical papers on agricultural matters by such eminent writers and practical authorities as X. A. Willard, J. D. Webb, and J. B. Lyman on dairy interests; Marshall P. Wilder on horticultural subjects, and others equally eminent on almost every branch of agriculture and rural economy.

Horticulture.

EDITOR—D. W. BEADLE,

CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Fruit Growing in the West Division of the Ontario District.

From the Report of the Fruit Growers' Association of Ontario for 1869.

The West Division of the Ontario District embraces the Counties of Peel, Wentworth and south part of Halton.

The following varieties of apple are recommended to be planted within this division, viz:—Autumn Strawberry, American Golden Russet, Baldwin, Black Detroit, Cayuga Red Streak or 20 oz. Apple, Colvert, Canada Red, Duchess of Oldenburgh, Early Joe, Early Harvest, Esopus Spitzenburg, Early Strawberry, Fall Janetting, Fall Pippin, Fameuse, Gravenstein, Hawthornden, Hubbardston Nonsuch, Holland Pippin, Hawley, Keswick Codlin, Kentish Fillbasket, King of Tompkins' County, Maidens Blush, Melon, Northern Spy, Primate, Pomme Grise, Red Astrachan, Ribston Pippin, Rhode Island Greening, Roxbury Russet, Sweet Bough, St. Lawrence, Swayzie Pomme Grise, Swaar, Seek-no-further Spice Sweeting, Talman Sweet, Wagener, Yellow Bellflower.

The following eleven varieties are recommended as profitable for market in the order given below, viz:—Northern Spy, R. I. Greening, Roxbury Russet, Baldwin, Fameuse or Snow apple, St. Lawrence, American Golden Russet, Red Astrachan, Early Harvest, King of Tompkins' County and Gravenstein

The following sorts are selected as being the most hardy within this division. They are recommended in the order in which they are named:—Red Astrachan, Duchess of Oldenburgh, St. Lawrence, Kentish Fill basket, Fameuse, American Golden Russet, Pomme Grise, King of Tompkins' County, Northern Spy and Gravenstein.

Mr. Beatty says the Newton Pippin and Yellow Bellflower have been tried and found too tender, but all the others say "none."

The borer, tent caterpillar and codlin moth are mentioned, but do no not seem to have been productive of much injury, except in neglected orchards. Mr. Leslie says, "by having all the fallen fruit picked up two or three times each week and fed to pigs, we have kept this enemy, the codlin moth, so much under as to make the damage done by it very trifling. Some orchards in this neighbourhood have suffered considerably from negligence in this respect." No disease of the tree is mentioned.

Spring is almost unanimously recommended as the best season for transplanting. Mr Leslie says, "fall and spring are found equally suitable. Transplanted in the fall they must have a good mulching of long manure. When manure is not convenient, bank up about the tree to the depth of about fifteen inches, which must be removed to the ordinary level soon after the frost is out. This also forms a very good protection against the barking of the trees by mice." Mr James Heslop says, "trees taken up soon after the fall of the leaf and well heeled in, have made a better growth the next season than when planted late in the spring. The reason is that the wounded root commences to heal over during the winter, and the root is ready to throw out its new fibres immediately on being planted."

With regard to dwarf trees, it seems that dwarf apples, pear and cherry have all been planted within this section, and that with suitable kinds and proper care they succeed well. Mr. Leslie says, all varieties of apple succeed as well dwarfed on the Paradise or Doucain stocks, as when worked on ordinary seedling stocks, and that the effect of dwarfing apples is to produce fruit earlier than from standards, and to make varieties that are tender or partially tender, much more hardy.

For dwarfing cherry trees the mahaleb stock is used. This he considers the best stock upon which to work the cherry, and the dwarf or low-headed form of tree the best for this climate. All varieties of cherry will succeed as well when worked upon the mahaleb as when grown as standards upon the mazzard stocks.

The pear is dwarfed by working it upon the quince stock. The roots of a quince being rather tender, he recommends to give them a heavy mulching in the fall with long manure or to bank the trees with earth, which should be removed in spring. They should have the benefit of *good shelter*, which remark applies to every kind of fruit tree grown in Canada. Clay loam is the most suitable soil for the dwarf pear. Some varieties of pear do not thrive well on the quince, and Mr. Leslie recommends the following varieties, viz:—Bartlett, Ananas d'Eté, Louise Bonne de Jersey, Duchess d'Angouleme, Flemish, Beauty, Belle Lucrative, Beurre Gifford, Beurre Diel, Sheldon, Vicar of Winkfield, and White Doyenne; and adds that much finer specimens of fruit can be produced on dwarf pear trees than upon standards.

The following varieties of pear are named as desirable sorts to plant in this division:—Ananas d'Eté, Buffam, Bartlett, Belle Lucrative, Beurre Bosc, Beurre Diel, Beurre Clairgeau, Beurre Giffard, Beurre d'Anjou, Beurre d'Aremberg, Beurre Superfin, Duchess d'Angouleme, Doyenne du Comice, Doyenne d'Eté, Dearborn's Seedling, Doyenne d'Alencon, Doyenne Gray, Doyenne Boussock, Flemish Beauty, Glout Morceau, Howell, Jargonell, Jaminette, Lawrence, Louise Bonne de Jersay, Maria Louise, Osband's Summer, Rostiezer, Swan's Orange, Seckel, Sheldon, Steven's Genneasee, Tyson, Vicar of Winkfield, Winter Nelis and White Doyenne

No varieties of pear are given as being too tender. Mr. Heslop says that the Duchess d'Angouleme has not proved as hardy as could be desired, and there is some reported tenderness of the Columbia and Bartlett, and yet that in some situations they *all* prove hardy enough for profit.

The following varieties are recommended as most profitable for market in the order in which they are given:—Flemish Beauty, Bartlett, Louise Bonne de Jersey, White Doyenne, Vicar of Winkfield, Buffam, Belle Lucrative, Sheldon, Winter Nelis, Beurre Clairgeau, Doyenne d'Eté, Beurre d'Anjou and Brandywine.

Those named as most hardy are Flemish Beauty, Glout Morceau, Vicar of Winkfield, Howell, Belle Lucrative, Sheldon, Winter Nelis, White Doynne, Tyson, Duchess d'Angouleme, Jaminette, Beurre Giffard, Easter Beurre, and Louise Bonne de Jersey.

There does not seem to be any suffering from disease or insects among the pear trees worthy of note. The pear blight is mentioned as a thing that has, as it were, been barely seen, and so of the slug and the rust on the leaf.

The following varieties of plum are named as succeeding well:—Lombard, Yellow Egg, Washington, Bradshaw, Duane's Purple, Peach Plum, Prince's Yellow Gage, Jefferson, Huling's Superb, Blue Plum, Smith's Orleans, Imperial Gage, Imperial Ottoman, Coe's Golden Drop, Green Gage, Guthrie's Apricot, and Columbia; none are too tender.

The following are recommended for profit, viz.:—Lombard, Prince's Yellow Gage, Yellow Egg, Washington, Huling's Superb, Bradshaw, Coe's Golden Drop, and Columbia. The curculio stings the fruit and causes it to fall prematurely. The only disease of the tree is the black knot. Mr. Leslie says, that all the blue and purple varieties become affected by the black knot when they attain a bearing age. The yellow varieties are much less subject to it, but cannot be said to be wholly exempt, with the exception of Prince's Yellow Gage, upon which he has not seen one of these excrescences. No insects attack the tree.

The varieties of cherry that succeed best are the common red or Kentish, Black Tartarian, Elton, Mayduke, Napoleon Bigarreau, Reine Hortense, Black Eagle, Rockport, Bigarreau, Elkhorn, Governor Wood, Late Duke, Yellow Spanish, and Plumstone Morello.

No variety of cherry is named as being too tender, but Mr. Leslie advises that all cherry trees be planted in sheltered situations where trees, buildings or the like will afford them some protection.

The Black Tartarian, Kentish, Mayduke, Black Eagle, Elton, Napoleon Bigarreau, and Rockport Bigarreau are said to be the most profitable for market.

No disease affecting the tree; Mr. Leslie mentions bursting of the bark occasionally by extreme cold weather, which he says can be wholly prevented by growing them with low heads. The insects are the slug on the leaf and the curculio in the fruit.

In the eastern part of this division the peach cannot be grown; in the westerly extremity near Hamilton, Dundas and Ancaster, it can be grown in the open air in dry warm soils and in sheltered localities, yet even here the fruit is now very uncertain, much more so than in former years.

The climate throughout this division is not favourable to the growth of the quince, apricot or nectarine. Like the peach, they can be made to fruit in favourable and sheltered situations or when trained on a wall.

Strawberries will do well. The favourite kind is the Wilson; besides which the Triomphe de Gand, Jucunda, Trollope's Victoria, Agriculturist, Nicanor, Russell's Prolific, Downer's Prolific, Hovey, &c., are named.

All name Wilson as the best for market; two add Triomphe de Gand; and Mr. Leslie adds to these Jucunda, and, for a near market, Downer's Prolific.

The following varieties of raspberries are found to succeed here, viz:—Franconia, Brinkle's Orange, Red Antwerp, Fastolff, Hornet, Philadelphia, Clarke, Black Cap, Prince of Wales and Fillbasket.

The following sorts are recommended to be planted for market in the following order:—Brinkle's Orange, Franconia, Clarke, Black Cap and Fastolff. Mr. Leslie says he has not seen any better market variety than the Franconia, which proves with him to be vigorous, hardy and productive, and the berry firm and fine flavoured.

The following gooseberries are recommended in the order below:—Houghton, Whitesmith, Crownbob, Warrington Red, Hearts of Oak, Red Ironmonger, and a seedling raised by John Brooking of Dundas, which is very like the Warrington, but has not yet been tested on light or sandy soils.

The English varieties of gooseberries are subject to mildew, especially on light soils. Houghton's seedling, and the before mentioned Brooking's seedling, as far as tried, are not subject to mildew. Mr. Leslie says the Houghton is a very useful and profitable berry, and should be largely grown for market.

Flour of Sulphur is found useful in preventing or mitigating the mildew. Lime, ashes and salt, with a coarse mulch, are also used. High cultivation, thorough pruning, and a strong soil are essential aids.

But few blackberries seem to have been grown. Mr. Leslie says, "the Lawton or New Rochelle is too tender, being killed nearly to the ground every winter; the Wilson, a little hardier, producing a small quantity of good fruit each year; but does much better when protected with a covering during winter. The Kittatinny is the best of all—is the hardiest, killing back but a few inches—and produces good crops of excellent fruit.

All varieties of currants thrive well. The White Grape, Cherry and Black Naples, are the most popular. There is no disease of the plants. The currant borer does some slight injury by boring through the pith of the stems; and the sawfly worm has done considerable damage by eating off the leaves. Mr. Leslie says these (the sawflies) are rapidly disappearing where pains are taken to kill them with white hellebore.

Some thirty varieties of grapes are mentioned as having been planted; of these only the Rebecca have been found to be too tender. The Clinton, Delaware, Concord, Hartford Prolific and Adirondac, are reported to be perfectly hardy; but Mr. Cooley says that *all* require protection during the winter. Those that ripen their fruit every year are the Clinton, Delaware, Concord, Hartford Prolific, Adirondac and Allen's Hydrid.

Mr. Leslie mentions a small vineyard of two acres, planted with Clinton, Delaware, and Hartford Prolific; and some foreign vines.

Mr. Burnet says there are some thirty-five acres of vineyards around Hamilton, planted with Delaware, Clinton, Concord, Salem, Iona and Oporto.

There is also a vineyard at Cooksville, probably the largest vineyard in the Province, planted mainly with the Clinton, in which the fruit attains a high degree of perfection.

No diseases of the vine are mentioned, and the insect depredations as yet have not been material.

The soil is of every character, from light sand to heavy clay, but clay loam predominates. In some parts the subsoil is gravelly, or a shale. The best apples and pears are those grown upon a clay loam with a somewhat porous subsoil. The best grapes are raised on loamy soil with a gravelly or a shale subsoil. Land that is rolling is preferable to that which is flat or low. Gooseberries and plums succeed best on heavy clays, pears on clay loam, apples on clay and sandy loam, cherry and peach on lighter sandy and gravelly soils. The extremes of temperature are ordinarily from fourteen degrees below zero to 95 degrees above, in the shade, though at times it has fallen considerably lower.

Mr. Leslie calls attention to a seedling strawberry on the grounds of Mr. John Cross, Oakville, named by him "Long John" from its peculiar shape. He says "it is a large berry and of good quality. The plant is much more robust and hardy than the Wilson, while its productiveness is fully *one-third more*, thus placing it at the head of the list for market berries. It has been planted and tested side by side with the Wilson for some years, and has fully borne out these statements. To the enormous productiveness I can bear testimony, having been an astonished witness thereof."

Mr. Leslie also adds that the Transcendant, Golden Beauty, Montreal Beauty crab apples are the favourites in this locality. A seedling crab with a distinct quite sweet flavour, raised by George Leslie & Son, promises well, the tree being, like all other crabs, very hardy, while the fruit cooks as well as the sour varieties, and requires only a modicum of the sugar.

Storing Winter Apples.

A correspondent of "Laws of Life," who claims to have had extended experience, is decidedly of the opinion that apples keep far better when put into close boxes or barrels, and secluded as much as possible from the air. When thus stored, he says they will come out in spring full and plump as when taken from the tree. Many varieties, as the Talman Sweet, Spitzenburg, and those kinds that are not considered as long keepers and shrivel badly, will do well treated in this way. I have, he continues, found universally, that they keep better to let them lie without picking over. It is much better to pile them into a large bin across the cellar, say six or seven feet high and four or five feet wide, and cover them up tightly, than to lay them on shelves.

I once saw such a bin that a man had kept through the winter. About the first of April he thought he would open the windows on the side of the cellar next the window to let in the air, that they might keep better. I was at his place and he my called attention to the fact. Two windows just over the bin were opened about ten days or two weeks, and the apples exactly opposite the windows about one-third rotted for as much as a foot in depth, and the remaining part on either side were not rotted at all.

Another instance: A neighbour of mine had about five hundred bushels in a pile in a cellar. As they became a little specked he commenced picking them over; when about half done, he got tired and concluded to let them go. When marketed about six weeks after, he found that about one-third of those picked over were not fit for market, while all but about one-twentieth of the others were good. This I have seen in numerous instances. If you wish to try the experiment, make a box as tight as a carpenter can make, and when picking from the orchard fill it and nail it fast. Let it lie in the orchard till it is in danger of freezing; then put it in the cellar. Put the same quantity on shelves for trial. I am pretty sure one experiment will convince.

NOTE BY THE HORTICULTURAL EDITOR.—The most convenient and, at the same time, the best way of handling apples for winter use is to select a cool, dry day, gather the apples carefully by hand into baskets holding about one peck, being careful to put into them only perfectly sound apples. Take dry barrels into the orchard, and place the first basketful into the barrel by hand, afterwards the basket filled with apples may be put into the barrel and the fruit carefully poured out. This should be done slowly and gently, allowing the apples merely to *roll out*, not *fall* down on to the fruit already in. As each basket is emptied into the barrel give the barrel a shake sufficient to settle the apples snugly and compactly into their places. Fill the barrel in this way even with the top of the staves, leveling with the hand by placing the apples so that there will be as little unoccupied space as possible, then put on the head, pressing it down to its place with the hand screw packer; drive on the hoops tight and nail a small strip to hold the head in place. The barrels, when filled and secured by nailing, should be taken out of the sun, and placed in a shed, open to the north, and remain there until there is danger of the apples freezing, when they should be removed to the cellar, which should be kept cold, barely free from frost, and the barrels opened as the fruit is wanted for use. If no such shed is at hand, let the fruit be stored in the cellar at once.

The American Sweet Chestnut.

We desire to call attention to this very valuable tree, and suggest to our farmers that they should plant it, especially those who have any light soil on their farms, though it thrives exceedingly well on clayey, loamy, gravelly, and rocky soils, indeed anywhere that the ground is not cold and wet.

The farmer should plant this tree because it is a hardy, native tree, thriving well from the shores of Lake Huron to Lake Erie; because it grows rapidly, bears fruit in a very few years—about as soon as most apple trees—which sells at from three to four dollars per bushel; and because the timber is very valuable even now, and is fast becoming more so; and if not available to the planter himself, will be of great value to his children.

Small nursery-grown trees can now be had of our leading nurserymen, which can be transplanted with entire success, and at a cost not exceeding that of apple trees.

The landscape gardener will not fail to use this tree abundantly wherever suitable, for it ranks with the oak, the king of the forest, in landscape gardening. It attains an enormous size, and is almost as remarkable for its longevity. The celebrated chestnut tree at Tortworth, in the county of Gloucester, England, measures nineteen yards in circumference, and is believed to have been standing before the Conquest, 1066.

Downing says of the chestnut that "when old, its huge trunk, wide-spread branches, lofty head and irregular outline, all contribute to render it a picturesque tree of the very first class. In that state, when standing alone with free room to develop itself on every side, like the oak, it gives a character of dignity, majesty and grandeur to the scene, beyond the power of most trees to confer. It is well known that the favourite tree of Salvator Rosa, and one which was most frequently introduced with a singularly happy effect into his wild and picturesque compositions, was the chestnut; sometimes a massy and bold group of its verdure, but oftener an old and storm-rifted giant, half leafless, or a barren trunk coated with a rich verdure of mosses and lichens.

"The chestnut in maturity, like the oak, has a great variety of outlines; and no trees are better fitted than these for the formation of grand groups, heavy masses, or wide outlines of foliage. A higher kind of beauty, with more dignity and variety, can be formed of these two genera of trees when disposed in grand masses, than with any other forest trees of temperate climates; perhaps we may say of any climate."

It is but a very few years since Mr. Robt. N. Ball, of Niagara, planted a few chestnuts, and from these raised some little trees which he transplanted on the lawn, that now not only are an ornament to the grounds, but yield a profusion of nuts. From this it may be seen that the tree is one of rapid growth, and that the planter may reasonably expect to enjoy much of the fruits of his labour in planting the chestnut.

On Melons.

The cultivation of melons has always been a specialty with me, and many are the failures I have made in their production, but during the past two seasons I have hit off what I consider to be the correct plan of growing this really delicious fruit in profusion and perfection for my own table. My plan is as follows:—

About the first of April, having a hotbed in good order, I start the plants in sods turned upside-down, and when the first two leaves after the seed leaves have formed, plant out in a cold frame; this may be done about the middle of the month.

Although the preparation of a cold frame is a very simple affair, yet, as some of your readers may not have had any experience in their construction, I will give them my method:—

Drive four stakes firmly into the ground at a proper distance apart, so that when boards are nailed to them, the end frames of the sashes provided will rest on the boards nailed to these stakes. I use my double windows, which are six feet long, and having nailed twelve feet boards to the stakes, three sashes side by side nearly extend the whole length. The sashes must have a fall of about eight inches to the south, two boards being used for the back, and one for the front. The proper slope can be obtained by sinking the back boards or raising the front as desired before nailing on. The main thing is to have these boards level, so as not to wring the sashes. After getting the sides properly adjusted, cut boards, so as to fill up one end; lay on the sashes, and fill up the other end with boards in the same manner, driving in the stakes to hold the end boards in their places. Then bank up with earth all round to make the frame tight.

The next thing is to enrich the earth in which the melons are to be grown. To do this, dig out two round holes, two and a half feet across, towards each end of the frame, two spades deep, and fill up with equal parts of sandy loam or rotted sods, and well decomposed manure thoroughly mixed. Put three plants into each *hill*, which should be slightly *depressed*, being at least two inches in the centre below the rest of the soil; this serves to hold the water when applied by the watering-pot. Having set out the plants, as before directed, about the middle of April, keep them moderately cool by giving air, that is, shifting the sashes, if the days are very bright, so as to allow air to pass between them, and watering daily until thoroughly established. (If the plants are grown in a good thick sod they ought not to wilt at all; wilting checks the growth, and should by no means be allowed.) In three or four days the sashes may be kept pretty close; always shut on cloudy days and at night, and in bright weather keep up a heat of from eighty to ninety degrees, watering the plants freely every other evening, and when they begin to run pinch off the main vine, so as to make the plant branch out.

It will be noticed that there are no female flowers on the main vine, and consequently no fruit. The fruit-bearing branches are what are in grape culture called the laterals. In June they will begin to flower, and at the end of that month the runners will fill up the frames. The weather at this season will be at its hottest, and the sashes may be removed, the boards knocked down, and the earth levelled, so as to give free scope to the melons to run. The first week in August, the vines may be stopped by pinching off the ends, as no fruit will set and ripen after that date. Ripe melons may be expected on or before the first of August, and a good supply will be gathered every day for two months.

When the fruit begins to ripen no more water should be applied, and, in fact, unless the weather is quite dry, very little water after the sashes are removed. It will be found that the vines will have done bearing before cold nights and days come round, at which time the melon tastes, in my opinion, more like a very bad turnip than anything else, perfectly devoid of sweetness and flavour.

Results—From two of these frames the youngsters kept count of the fruit gathered, and the produce was ninety-three, chiefly nutmegs and canteloups, of the sweetest and most exquisite quality.

The method practised by some of growing melons in hotbeds is decidedly erroneous.

My experience goes to show that they are entirely lacking in flavour. It will be found highly advantageous, when putting out the young melon plants into the cold frames, to plant out in rows, also from the hotbed, the young tomato plants and some lettuce for early use. The tomatoes will make much stronger, stockier plants in the cold frame than they will with bottom heat, which tends to make them thin and sickly. From tomatoes grown in this way fruit may be gathered about the 20th of July. Of course, when they touch the glass in the cold frame they should be set out in the open ground.

Ottawa. P. E. BUCKE.

The Twenty-four First-prize Roses

At the great Crystal Palace Rose Show, held last June, where the competition is probably the keenest and the standard of excellence the highest of any place in the world, the collection that received the first prize contained the following names :—

COMTESSE DE CHABRILLANT, a lovely pink colour, very perfect, and beautifully cupped.

MARIE RADY, not known to us, probably has never been bloomed in this Province.

MAURICE BERNARDIN, a rich vermilllon rose, of large size, and very fine form.

MARECHAL NIEL, a most beautiful deep yellow tea-scented flower, of large size and and very sweet.

HORACE VERNET, very large, a beautiful velvety purplish red, shaded with dark crimson.

JOHN HOPPER, also large, clear rose colour, with crimson centre.

XAVIER OLIBO is velvety black, shaded with amaranth, large and full.

MARQUERITE DE ST. AMAND is a most abundant bloomer, flowers large, full, of fine form, and a rosy flesh colour.

PRINCESS MARY OF CAMBRIDGE, of a pale rose colour, quite full, and of good form.

LE RHONE, a rich and brilliant vermillion, flowers large and full,

DUKE OF WELLINGTON is a bright velvety red, shaded with blackish maroon, with a fiery red centre.

EDWARD MORREN, also unknown to us.

MADAME NOMAN is pure white, of medium size, but fine form.

MARIE BAUMAN; this is very large, smooth and nicely formed, of a bright carmine colour.

DEVONIENSIS, a tea-scented rose, very large and full, of a light yellow colour, very fine for pot culture.

SENATEUR VAISSE is large, very double, and of a beautiful bright red.

MADAME VIOLET; the flowers are large and full, in colour transparent flesh, shaded with rose.

MADAME CLEMENCE JOIGNEAUX, very large size, the colour red, shaded with lilac.

VICTOR VERDIER is a very showy flower of a rosy carmine, with purplish edges.

MADAME CHARLES WOOD, a very large and effective flower, of a clear vinous crimson colour.

ANTOINE DUCHER is a very fine flower, very large and full, in colour bright red.

ALFRED COLOMB is bright fiery red, of a fine globular form, and very effective.

DR. ANDRY, one of the most showy, being very large and full, of fine form, and dark bright red colour.

MADAME LA BARONNE DE ROTHSCHILD, a most beautiful flower, colour clear pale rose, shaded with white, very large and double.

Those of our readers who wish to confine their collection to a dozen of the choicest roses, may order of their nurseryman the following names, with every assurance that they will do well in our climate, and satisfy every reasonable expectation. They are among the very best, and we esteem them as perhaps the very best dozen roses it has been our privilege to plant. We name them Alfred Colomb, Antoine Ducher, Boule de Neige, Comtesse de Chabrillant, Duke of Edinburgh, Madame Alfred de Rougemont, Madame la Baronne de Rothschild, Madam Charles Wood, Maurice Bernardin, Prince Camille de Rohand, Victor Verdier, and Xavier Olibo.

Those who wish a few choice roses for window culture will be well pleased with Devoniensis, Madame Alfred de Rougemont, Maurice Bernardin, Modele de Perfection, Souvenir d'Elise Vardon and Souvenir d'un Ami.

How to Make a Lawn.

The ground should be entirely free from stagnant water. It must be trenched or trench-ploughed to the depth of eighteen or twenty-four inches. A week of hot, dry weather will be sufficient to dry up the grass on a thin soil, whilst on a deep, well-prepared soil, a whole month of drought would fail to destroy the verdure. The depth, whatever it may be, should be uniform, for if it be deeper in some places than in others, the deep places will settle and make the ground uneven. Evenness of surface is of great importance. I do not mean level, for an undulating surface is quite as desirable for a lawn as a level one, but whether level or undulating it must be smooth and free from even the smallest stones, as these interfere with the operations of the mowing machine.

Red-top is the best grass for a lawn, about fifty or sixty pounds to the acre. Fifty pounds will be sufficient if the seed be clean and good, which it seldom is. Some people recommend white clover, say one-fourth, to be mixed with the red-top, and this does very well, but I prefer the pure red-top. Early in the spring is the best time for seeding a lawn. All preparatory work should be performed in the fall, so that during winter the ground may settle, and any defects that may be developed can be corrected before sowing. In spring, at the fitting moment, give a light ploughing, a good harrowing, pick off the stones, sow the seed, and give it a good rolling, which finishes the work.

By sowing early in the spring you may have a respectable lawn before midsummer. —*P. Barry's address before the Geneva, N. Y., Agricultural Society.*

Hickory Nuts.

Cracking hickory nuts is one of the pastimes of boyhood that men seldom forget. But with all its popularity, and the almost universal acknowledgment of the good qualities of the hickory nut, very little has yet been done to improve or propagate the best varieties. The common shell bark (*Carya alba*) and the pecan nut (*C. olivæformis*) are generally admitted to produce the best nuts; but there is a great difference in the size and quality of these, and varieties are abundant, some of which are far superior to others.

To produce improved varieties from seed would be a slow and tedious process; but it can, and will be done, although at present we may well be satisfied with the very best natural seedlings that can be found in various sections of the country. The hickory is a difficult tree to propagate by the ordinary methods of budding and grafting; and we should be happy to hear from any of our readers who have been successful in propagating it by either of these methods. At present we do not know of any better plan than to splice or cleft graft the young seedlings.

Believing that there are varieties of hickory nuts worthy of propagation as well as for the purpose of receiving distinct names, we shall endeavour from time to time to call attention to some of the very best, and we commence the list with

HALE'S PAPER SHELL,

a most superior variety of the shell bark hickory, which originated near Ridgewood, N. J. The nuts are large, varying from an inch to an inch and a quarter long and about the same in width. Shell thin, and instead of the regular corrugations running from base to point as usual in varieties of this species, the entire surface appears to be broken up into small depressions, which gives it a wavy appearance somewhat similar to the English walnut. The Hale's is certainly one of the most distinct and valuable sorts that we have ever seen. There is one seedling of the Hale's standing near the original tree, which is now thirty years old; but the nuts are quite distinct from those borne by the parent tree; and this fact shows that the only certain way of perpetuating distinct varieties of hickory nuts will be in the usual mode adopted with fruit trees.—*Rural New Yorker.*

The Beurre d'Anjou Pear.

This is one of the most valuable pears in cultivation, and deserves to be most widely disseminated. The fruit is of large size and fine appearance, the skin of which is yellowish green, sprinkled with russet, and often presenting a dull crimson cheek on the sunny side. The flesh is melting and juicy, very nicely perfumed, and having a brisk vinous flavour, ranking in quality among the best. It is usually ripe in November, but will often keep until January. The tree is vigorous and very productive, and seems to be likely to prove hardy, so as to thrive well where pears can be grown.

The fruit is much sought after in the city markets, and last year sold readily in the Boston markets at $30 per barrel.

THE FARMER'S CHRISTMAS FLOWERS.—Besides the Everlastings, which can be cut in summer and laid away in a drawer for the decorations of the holidays, the double geraniums furnish a showy and most beautiful bouquet. If these are cut when the truss is in perfection, and carefully dried in a dark drawer, they will keep their colours perfectly and not drop a petal. Tastefully arranged with a few sprigs of evergreens, they make a most showy ornament for the Christmas dinner table.

Protection against Mice.

To the Editor.

SIR,—Mr. W. H. Mills' plan of protecting fruit trees from mice during the winter may be very good in some places, particularly where tiles may be easily procured and where the snow is not very deep, but tiles would not be of much use in many parts, especially where the snow falls to a depth of two to two and a half feet. I saw plenty of apple trees last spring that had been peeled to a height of five feet, even up into the limbs. It was the outside row of trees nearest the fences, where the snow had been drifted, for the mice will work as high as the snow lies. To make sure work with tiles, they would require to be at the least two tiles deep. In this township last winter there were hundreds of trees killed by the mice—some that had been planted for six years and were bearing well. One man estimated his loss at not less than a hundred dollars.

I have about three hundred trees, none older than seven years planted, and I did not lose one tree by mice, nor even have one bitten by them, although there are some fifty pine stumps in my orchard, which are good harbours for mice. Indeed, the ground last spring was riddled by them, but no trees were touched.

My plan of protecting the trees is simple, and within the reach of all, not costing over one-twentieth of the price of Mr. Mills' tiles I use white lead and linseed oil, putting in a little lamp-black to colour nearly of the colour of the bark. I make a good thick paint and put on with a brush. It is

Protecting Strawberry Plants.

In those parts of the Province where snow cannot be relied upon to cover the strawberry plants all winter, some protection should be given them to insure a full crop of fruit. When the plants are not covered through the winter by the snow, they are subjected to so many freezings and thawings that the fruit buds, already formed and lying concealed within the crown of the plant, are injured. A very slight covering is all that is required—a few evergreen boughs or leaves, or thin covering of straw. A thick covering is apt to keep the plants too warm, which proves to be equally as injurious as too much exposure. Every one can have an abundance of strawberries any year, at the cost of a very little care and labour The Wilson has proved to be the most productive and hardy everywhere of any variety in cultivation, and when fully ripe is a much higher flavoured berry than the Triomphe de Gand, which is usually grown as the next most profitable sort.

The Weeping Mountain Ash.

This is a variety of the common mountain ash, which has a drooping habit, and on that account makes a very pleasing object on the lawn. It is propagated by grafting the drooping variety upon the common mountain ash, at such a height from the ground as it is desired to form the head, for it droops so much that it increases but very little in height above the place where the graft is inserted. It bears berries like the common kind, as shown in our engraving, which gives our readers a very good representation of the general appearance of the tree It is very hardy, and will thrive in any part of the country, so that no one need hesitate to plant it. It is particularly appropriate for cemeteries, where it may be very advantageously planted with other drooping trees.

good for the trees into the bargain. White lead is a poison, and mice have four good, strong senses, namely, sight, hearing, taste, and smell. It will also prevent the apple-tree borer in summer, and it is good for wounds of all kinds on trees, whether by pruning or from accidents.

A large number of apple-trees were lost last winter by bark-splitting at the bottom. The cause I believe to be this—when it rains in winter the water runs down the trees to the ground, lodges in a small pool and freezes round the tree. Bank the trees with earth, a few inches higher than the ground around, so that the water will run away instead of lodging, and no fear of bark-splitting. In general there is a hole or depression around the stems of trees at the root; before the winter sets in, fill this up, and avoid the loss of valuable trees in spring.

AN OBSERVER.

Craigvale, Nov., 1870.

Such practical suggestions are always valuable, and always welcome—ED.

The winter meeting of the Fruit Growers' Association of Ontario will be held in the Court House, in the City of Hamilton, on Tuesday, the seventh of February, 1871, commencing at 10 o'clock, a.m., and continuing through the evening.

CHESTER SEEDLING GRAPES.—F. R. Elliott writes to the *Rural New Yorker* his doubts concerning the value of these seedlings in the climates and soils, the rough care and culture, of the majority of our grape growing sections.

SUMMER PINCHING OF RASPBERRY AND BLACKBERRY CANES.—A correspondent of the *Gardeners' Monthly*, writing from Illinois, says that he has found much benefit by pinching back the canes of raspberry and blackberry plants in July, and enumerates them thus: 1st. Increases the size and self-supporting capacity of the main canes. 2nd. Increases the number of side branches, and consequently the quantity of fruit.

USEFUL MANURE FOR RASPBERRY PLANTS.—Mix equal parts of sawdust and stable manure, and place the compound around the roots every fall before the snow comes. This mixture tends not only to keep the roots warm during winter, but the sawdust, by partially decomposing, furnishes a quantity of potash which is very requisite food for the growing plants. Grape vines may be treated in a similar manner.

THE WEEPING HEMLOCK.—There is an illustration in the *Rural New Yorker* of a new weeping variety of the hemlock, which must make a very handsome addition to our collection of hardy native evergreens. It seems to have been discovered by H. W. Sargent, Esq., of Fishkill, N.Y., growing among some young seedling hemlocks. Grafted some feet from the ground on stocks of the common hemlock, it forms a very pretty drooping head of light feathery evergreen spray.

Poetry.

SEA VENTURES.

I stood and watched my ships go out
Each, one by one, unmooring free,
What time the quiet harbour filled,
With flood tide from the sea.

The first that sailed, her name was Joy,
She spread a smooth, white, shining sail,
And eastward drove with bending spars
Before the sighing gale.

Another sailed, her name was Hope,
No cargo in her hold she bore;
Thinking to find in western lands
Of merchandise a store.

The next that sailed, her name was Love,
She showed a red flag at her mast.
A flag as red as blood she showed,
And she sped south right fast.

The last that sailed, her name was Faith
Slowly she took her passage forth,
Tacked and lay too; at last she steered
A straight course for the north.

My gallant ships they sailed away,
Over the shimmering summer sea;
I stood at watch for many a day—
But one came back to me.

For Joy was caught by Pirate Pain;
Hope ran upon a hidden reef,
And Love took fire and foundered fast,
In whelming seas of grief.

Faith came at last, storm-beat and torn,
She recompensed me all my loss;
For, as a cargo safe she brought,
A Crown linked to a Cross.

—*Boston Cultivator.*

The Winter Snows.

Over the mountains the snow-wreaths are drifting,
Hanging their garlands on laurel and pine,
Robing the fields with an exquisite beauty,
Bending the feathery sprays of the vine,
Falling like down on the breast of the river,
Crowning the maple trees over the way,
Drifting along on the winds to the southward,
Hiding the vessels far out in the bay

In the red sunset the snow-flakes are shining,
Snow-drift on snow-drift, and curl upon curl,
Flashing back colours of exquisite brightness,
Diamonds and rose-leaves and mother-of-pearl.
Softly, ye snow-wreaths, drop over the hill-side
Where in still slumber the weary ones rest,
Where by the pine-tree my mother is sleeping,
Tenderly lay your white folds on her breast.

Soon shall the spring-time break over the mountains,
Over its beauty no cold wind shall blow;
Frost shall not breathe there to wither the flowers,
Never again shall they hide in the snow;
Eye hath not looked on that spring in its beauty;
Songs of the seraphs shall welcome its birth;
Come in the beauty and glow of the morning,
Spring-time eternal, dawn over the earth!

Architecture.

Building Houses without an Architect.

I had an excellent kind friend, and also an old worthy female servant. They each wanted a house, and, as I had some experience in almost all kinds of Canadian work, and also wished very much to make some return to both my friend and the old servant, I offered to buy them each a lot and build two houses. There was a vast difference in the kind of house required; my friend's was to be a handsome imposing brick edifice, to cost some $2400, and his lot was set down at somewhat over a thousand dollars outlay; whereas the old servant's lot must not exceed $400 in cost, and the house must be built for her at a cost of $100, and not to exceed this amount—indeed she had no more money.

This work, the first of the kind I ever attempted, is now complete; and I may say, what few young architects can, it is complete without a mistake of any kind. I may except one, which is more an alteration than a mistake, but it needs no particular description, and only amounted to enlarging one room at the expense of another, thereby equalizing them both.

Now I may safely state than an architect is *not always necessary*, and in our case we should have had to pay him over one hundred and forty dollars for just doing what I myself did. And the only safe thing for any of my readers—who are going to build, and who are also going to dispense with an architect—to do is, just to carefully draw the ground plan of the house, show everything, doors, windows, partition, chimneys, and all, do not leave one iota to be contrived or introduced, or "seen about," when the lower floor is built. Do the same with all other flats, draw them all most carefully; and also draw each joist and trimmer in it. When you have done this with every floor from the ceiling to the garret, staircase and all, begin on the outside, and draw four or more views, one for each side, and put in every window and door, water spout and descending pipe, so that you can see at a glance what every view will embrace and require. Do this with roof and also each view of it. Next we come to particulars—windows and doors. Proceed to draw a window, the very same you design to have, but do this last plan on a very large scale, say one inch to the foot at least, and draw every view of the window—sides, sill, top and sash, each in its turn, but so drawn, even to the moulding, as will show every view of your window; and this one window will answer for all others. Do the same with a door, and this one, outside or inside door, will also answer for all else. If you want any plainer door, draw it also; draw everything, and you will find that although when you begin you will know nothing about drawing plans, when you have given five or six evenings to the various details here discribed you will wonder *how much you have learned*, and in how short a time. And this is the true way to knowledge; the way, simple as it seems, that all great and self-made men have been formed. In fact, the only way, for if you wait for instruction on every point and your mind is too indolent to think it out for yourself, for the most part you will never do to build a house without an architect; you may quite rely on that. Nor, indeed, is it probable you will ever do anything but work for some one whose mind is not too indolent, or whose body too lazy to carry out any project he may determine on as feasible and within his reach.

Suffice it further to say, that both the houses were completed, and also almost to time, and neither cost more than was estimated, except where some extras were introduced, which were well afforded and did not cost much. In some future article I will give a description of the buildings and the cost. One thing I am quite sure of—no small family need pay rent who have $100 wherewith to build a small house of three rooms of 12 by 9, 12 by 12, and 12 by 9.

These three measurements were the size of the $100 edifice, and when I first married I lived in one much worse for some years, until I determined to build one for myself, and did so at a cost of $125. Some description of this house, which was built of clay unburnt bricks, may at a future time interest some of the readers of the FARMER.

The present $100 dwelling was, however, built of frame, and plastered inside. C.

Foundation of Houses on Sand.

It is not generally known that foundations for large and heavy brick buildings can be quite safely constructed on quicksand, even where your foot will sink rapidly when pressed on it, and also where the sand is full of water—the only requirement to ensure a perfect foundation under these conditions being that no future operation will allow of the escape of the quicksand, and that the base or lower bearing of the building on which the walls are to be erected should be first constructed of two-inch plank laid crosswise, say about three or four feet in width. On this should be laid another layer of two-inch plank, but this should be laid lengthwise, crossing the lower tier. For very heavy walls another crosswise layer of planks may be laid; but for all ordinary heavy buildings, such as mill walls, the above two ply of two-inch plank will be found sufficient. The fact of water being on the sand will not hurt the stability, or injure the walls in any way; nor will any settlement be as likely to take place as on ordinary soft clay, strange as it may seem. But beware of under-draining *after* the building is constructed, and thus removing the water from the sand. There will in this case be imminent danger of settlement; the quicksand, deprived of its water, will at once allow of alteration in relative levels. C.

Household.

Farmers' Daughters.

There can be no question that the mutual influence of the sexes in families is fraught with advantage to all parties concerned. It is a matter of common observation and experience that boys or young men who have been brought up without sisters, are more rough, uncouth and boorish, than those whose manners and tempers have been softened by female intercourse at home. It is equally true that the presence of brothers in a household is of no small importance in moulding the character of sisters. This is most marked when the brothers, or at least one or two of them, are the older. The girls in this case will always exercise, both towards each other and their brothers, more forbearance and sweetness of temper than where there is not this intermixture of sexes. Boys and girls, however amiable, will be more quarrelsome with these of their own sex than when under the harmonizing and restraining influence of the other. Of the tender and ennobling influence of the mother over the son, every man while a spark of goodness lingers in his breast will carry some trace and softening memory to his dying day. It is here, indeed, that woman's highest mission lies; and while she has the noble task of moulding men's characters, and instilling into their souls all that is purest and best in human nature, she need not descend from her lofty sphere into the dusty arena of politics. Very few *mothers* trouble themselves about the *ballot*, or care for the franchise in any form.

It is true that domestic cares, in this country especially, often press too heavily on women, and their life is sometimes one of too little varied drudgery; but nevertheless it is no doubt best for them to know something of household cares.

Our belief is that a due proportion of duties and recreation constitute the *summum bonum* of female happiness. We do not mean that girls shall have too much absolutely hard work to do, and of course altogether object to their having to engage in out of door farm labour; but we hold that they are both better and happier, as wives and mothers, when the necessary home duties have formed, before marriage, part of the daily routine of the daughter's life. To do otherwise, is simply to make any girl feel, that having married has made her life harder and her lot worse rather than better, and with these feelings rankling in her heart, she will be always more easily vexed and "put out," when any little misunderstanding takes place with her husband, than if the duties above alluded to were so familiar as to make no such painful impression on her mind.

By all means let our daughters discard the idea of there being anything to be ashamed of in household work. Sensible young men would rather see them in neat and appropriate dress "making biscuits," than know that they have rushed from some such employment, on the announcement of a visitor, to re-arrange their toilet and put on with "company" dress "company manners," from which all naturalness has fled. A loving woman with neat-handed skill in home comforts is more attractive and more helpful and happy than all the "fine ladies" in the world. Depend upon it, where two young people begin housekeeping together, even when their means are not straitened, the household will be far better managed and mutual happiness more surely attained, if the wife looks on her family duties as her pride and pleasure, than if she regards them as a burden and a tax from which she will escape as much as possible.

PASTE THAT WILL KEEP A YEAR.—Dissolve a tea-spoonful of alum in a quart of warm water. When cold, stir in flour to give it the consistency of thick cream, being particular to beat up all the lumps; stir in as much powdered rosin as will lay on a dime, and throw in half a dozen cloves, to give a pleasant odour. Have on the fire a tea cup of boiling water; pour the flour mixture into it, stirring well all the time. In a few minutes it will be the consistency of mush. Pour it into an earthen or china vessel; let it cool; lay a cover on, and put it in a cool place. When needed for use, take out a portion and soften it with warm water.

THE CHILD'S CORNER.

The following lines and the moral appended were sent to us by a little girl, eleven years old. We are always glad to encourage the little ones, and especially to foster in their minds such sentiments as are here expressed.

There's a Streamer of Crape on the Latch of the Gate.

There's a streamer of crape on the latch of the gate
When the sun shines bright and fair;
And the children say, as they play on the green,
"There's somebody dead in there."

There's a streamer of crape on the latch of the gate,
And a lady comes forth from theuce,
"My darling is gone!" she says to the throng
That is waiting about the fence.

The streamer of crape is removed from the gate,
But to be placed there again,
For the God who took the daughter away,
Called the sorrowing parents to Heaven.

MOTHERS.

Children, you will never have another mother. Be careful to obey her every word, and earnestly attend to all her wishes. If you do this, there will not be so much remorse when the loved one is taken from you. You can think in after times, when you call her to mind, that there was one comfort, and that comfort was that you never did anything to displease her.

MAUDE.

Agricultural Intelligence.

Sale of Thorough-bred Stock.

An auction sale of Short-horns, Cotswold sheep and Berkshire swine, belonging to Mr. John Miller, took place according to advertisement, on the 16th of November, at Thistle Ha', Pickering. There was a good attendance of buyers, and the sale was quite successful. The first lots offered were the Cotswold sheep. Eleven imported ewes were sold, of which one pair brought $220, another pair $200, and the rest ranged from $170 down to $94 per pair. Fourteen ewes, bred on the farm, brought from $40 to $80 the pair. Only two of the rams were put up, the season being late. These fetched $100 each. Five Berkshire boars brought from $18 to $41 each.

Of the Short-horns there were eight cows, eight heifers, and eight bull calves. The total sum realised for the twenty-four cattle was $3634, giving an average of $151 per head. The highest price obtained was for the cow Maggie 2nd, that with a heifer calf by her side brought $310. $291 was given for another cow, Camellia, and several fetched over $200. Mr. Morgan, of New York State, gave the highest price, $200, for a heifer. The bull calves also brought good prices, making an average of $120 per head for the lot. The highest price for any one calf was $180.

Trial of Double-Furrow Ploughs.

A public trial of two of these ploughs took place at Milliken's Corners, Markham township, on Monday, November 14th. The day being wet and stormy, but a small attendance of farmers was on the ground, the number of spectators not exceeding fifty. Of the ploughs brought out one was made by John Gray & Co., Uddington, Scotland, and imported by Wm. Rennie, of Eglington, York township. The other was made by R. Mitchell & Son, Peterhead, Scotland, and imported by C. Brodie, Gormley, Markham township. The ploughs set to work about 2 p.m., in a field of good strong timothy sod, the soil a rich loam interspersed with small stone. One pair of horses drew each plough. The work done by both was not only entirely satisfactory, but greatly exceeded our expectations; and was superior even to what can be accomplished by the best ploughman. The work done by the Gray plough seemed the best, the furrows being more smoothly and evenly laid, and set up at a better angle than those of the Mitchell plough. Each furrow cut was 12 inches wide by six deep. For want of a dynometer we could not ascertain the amount of draft of the respective ploughs, nor how it would bear comparison with that of the ordinary single-furrow plough; but the general impression seemed to be that with three horses such as are ordinarily used, and as a faster gait attained, it would be easy work to pleugh four acres of land in an ordinary day's time. The teams used were heavy Clydesdales, and accomplished their work with apparent ease, yet their gait we thought to be too slow, as compared with ordinary ploughing. The machines themselves are somewhat complicated, requiring no handles for guidance, the work being controlled by three wheels on which the machine runs, which go a great way towards lightening the draft. From what we saw at the trial we are satisfied that the double-furrow plough will prove perfectly practicable, and not only a saving of time and labour, but also doing away with the necessity of employing experienced ploughmen at high wages; as the machine can be easily controlled and guided by any man or boy of ordinary intelligence after a few lessons on its management. The cost, too, is not great, being about double that of the best iron plough now in use. It could be probably still further modified and cheapened by our own agricultural implement manufacturers.

It is Mr Rennie's intention, we believe, to import several more of them during the winter, and have them tested with the dynometer next year.

Shorthorn Sales in Britain

A number of recent sales of Shorthorns are reported in our English exchanges; among them the following are worthy of notice :—

A sale was held early in October of a selection from the herds of the Messrs. Garne, of Broadmoor and Churchill Heath, when no very high figures were given, but prices were pretty uniform, and the good average of £36 4s. 4d., on fifty-seven animals, was realized, the fifty-four cows and heifers making £36 2s. 11d. each.

A herd of 74, belonging to Mr. Butler, of Badminton, sold the next day, including some higher figures, but making much the same averages, namely, £38 7s. 4d. on the whole, and £39 11s. 7d. on 62 cows and heifers by themselves. Bids were made in several cases for Mr. Cochrane.

At the sale of Mr. Hewer, Sevenhampton, prices were low, averaging £26 on cows, about £23 on heifers, and less than £12 on calves. A fine lot of Berkshire pigs were sold at good prices, Mr. Beattie, of Canada, being one of the most liberal purchasers, and paying from 9 to 17 guineas each for a number of young sows. One young boar brought 21 guineas. The forty pigs realized £459 18s., or an average of £11 10s., said to be probably the highest price that has ever yet been realized for a similar lot of Berkshires.

A draft from the herd of Sir G. R. Phillips, Weston Park, was sold on October 18, consisting of 39 females and 9 bulls. The averages were very good, being £46 15s. 6d. on the former, and £28 on the latter, or £43 5s. on the whole 48. The highest prices paid were—£215 5s. for Polycherry, red, calved Sept, 27, 1868, by 3rd Duke of Geneva; £210 for Lactea Oxoniensis, roan, calved Jan. 27, 1867, by Imperial Oxford; £183 15s. for Lactine, roan, calved March 14, 1869, by 3rd Duke of Geneva, and £115 10s. for Polygeneva, calved March 29, 1869, by the same bull. As regards the several families of cows embraced in the sale, the following averages are given :—

		£. s. d.	Average. £. s. d.
13	Fawsley & Charmers	1099 16 0	83 16 9
12	Welcomes.....	365 8 0	33 4 4
6	Gwynetha	174 6 0	29 1 0
18	Shorter Pedigrees	446 15 6	24 16 5

At a recent sale of Mr. Marr's short-horns, Uppermill, reported in our English exchanges, the average price of twenty bulls sold was £25 14s.; the average price of heifers was over £26 10s.; and the total proceeds £1059 10s. Some of the lots were destined for Canada.

Cattle Plague.

For upwards of fifty years the continent of Europe has been a stranger to the wide-spread diffusion of cattle plague which now exists. The disease has extended far and wide from many of the places then named as centres of the infection. This was to be expected, seeing that the pressing necessities of war prevented the full adoption of those sanitary measures on which Central Europe mainly relies for arresting the cattle plague. Passing onwards with the German army, the plague soon came into the valley of the Marne and the Seine, and according to some reports has absolutely made its appearance in Paris itself. How it passed the Prussian lines which beleaguer the unfortunate city may not perhaps be known, although we can easily conceive of many ways by which the infection might easily be transmitted inside the fortifications. The provinces of Alsace and Lorraine—especially in the district around Metz—are sustaining severe losses; indeed it has been recently stated that the cattle were there dying too fast to admit of their proper burial. Around Metz also the plague has broken out among the sheep. To save as much food as possible the Germans are slaughtering the apparently uninfected animals, and salting down their carcases. In the Palatinate the plague is reported to exist in sixty communes, and already about 1,200 beasts have been killed to arrest its progress in the neighbourhood of Kaiserslantern and Landau. Fairs and markets are suppressed in Luxembourg, and also the herding together of cattle in large numbers belonging to different owners. In Rhenish Prussia the disease has broken out in the neighbourhood of Treves and Cologne, and also in some districts near Coblentz. In Prussia proper it has re-appeared in many places in which it

was thought it had been exterminated. Six places near to Potsdam, according to the latest intelligence, are still the seat of the malady. No improvement has taken place either in Pomerania or Mecklenburg. In the latter-named duchy the prevention of the pasturage of cattle in open fields, among other means of suppression, has been adopted. In Saxony no more cases are reported from Dresden; but Freiberg, Langenuime, and Berthelsdorf are still centres of the infection. In Poland also no improvement has taken place, while the spread of the disease in Galicia may be designated as most serious. Eight divisions of the country, some of which are far removed from each other, are now suffering from the cattle plague. In Transylvania the disease is on the increase. We have no information from Hungary; but in Turkey and along the Asiatic shore of the Black Sea the disease is far from being exterminated.—*Mark Lane Express.*

Ploughing Match.

A ploughing match for the Township of Hamilton was held on the farm of Mr. Wm. L. Burnham (Lot 25, in the 1st Concession), on Tuesday, the 15th November, when thirty ploughs entered for the match. They were divided into three classes, two for men according to the kind of plough used, and one for boys. There were eighteen in the first class, seven in the second, and five in the boys' class. The rain of the previous day had made the ground rather soft, yet the work was all well done, and some of the boys' ploughing was particularly good. The Judges, Messrs. Wm. Mulholland, George Carruthers, and John Kendall, after long and careful examination, awarded the prizes as follows, viz. :—First class: 1, Geo. Retalick; 2, — Wright; 3, Patrick Doyle; 4, James Raby; 5, William Smith. Second class: 1, Matthew Smith; 2, Robt. Ferguson; 3, David Buttars; 4, Walter R. Riddell; 5, William Mason, junior. Third class: 1, George Farr; 2, Samuel Redpath; 3, Francis Ward; 4, James McCulloch; 5, David McIntosh. The day was fine, and there was a large number of spectators from Hamilton and neighbouring townships, and much interest was taken in the work as it progressed. It was the largest ploughing match, we believe, ever held in the township.

The rinderpest continues to make frightful ravages among cattle around Metz and other parts of France and Germany.

The Western Fair Committee of London have met and reported a successful financial result. The Fair of 1870 has sustained itself, with a little to the good. With the untouched fund in 1868 of $1,000, and $2,500 of the city society in the bank, the directors of the institution congratulate themselves upon having $3,500 as a capital to start with next year.

One of the novel and attractive features of the California State Fair at Sacramento, was the display of indigenous sugars, of which there were specimens manufactured from beet-root, and also from melons.

"Free markets, free roads, no tolls," is the cry in Kingston. The loss of the military is stirring up the people to counterbalance it by attracting produce to the city from the back country to a free market over open roads.

The exports from the port of Napanee to the United States for the month of October were 174,960 bushels of barley, 1,015,300 feet of lumber and other woods, amounting in all to $155,066.

The Waterloo cattle fair on the 8th Nov., was attended by about 100 head of cattle. From 3½ to 4 cents per lb., live weight, were the ruling figures for those in moderately good condition. There appeared to be a lively demand for cattle for feeding purposes.

A Bee-keepers' Convention is to be held in Cincinnati, Ohio, on Wednesday and Thursday, February 8th and 9th, 1871, at which all sections of the United States, Canada, and other places, are to be represented.

In New York and some other American States a very commendable law is in operation, by which any one who plants shade or fruit trees on the highways is relieved from his assessment of taxes to the extent of $1 for every four trees so planted at distances specified by the Act.

A Fish-breeders' convention has been called to meet at the Skating Rink, New York city, December 20. A show of fish may be expected in connection with the exhibition of the New York State Poultry Society. The design of the convention is consultation for the protection of the interests of fish breeders, and, if thought best, to organize a permanent association.

The Elora *Times* says there have arrived at the Elora railway station during the past week about seventy car loads of wheat. The wheat was purchased in Milwaukee by J. M. Fraser, Whitlaw & Gay, and J. M. Ross; and after paying expenses of freight, &c, can be laid down at their mills cheaper than they can purchase it from the farmers around Elora.

The report of the United States Department of Agriculture comes to the startling conclusion that such is the wholesale destruction of American forests, there will be an actual famine for wood in the country within thirty years, unless immediate measures are taken to supply their places by new plantations. It is estimated that from 1850 to 1860, 20,000,000 acres of timber land were brought under cultivation, and that in the present decade no less than a hundred millions will be so reclaimed. We see but one remedy for this :—Let the Government offer large premiums for the cultivation of forests.

It is said that the English sparrow is death on the curculio and the caterpillar, two great pests to fruit trees. The English sparrow is found to be easily acclimated in Canada, and the colony in Quebec is thriving heartily. Following the example of Colonel Rhodes, of Quebec, Mr. John Proctor, of Hamilton, intends to bring with him on his return from England a large number of these birds, which will be turned loose in the spring.

Owing to the letting of two of the Branches Park farms, and the consequent necessity of the reduction of stock, a portion of Lady Pigot's herd of Short-horns was lately sold. Among the cows disposed of, Mantalini 2nd brought the highest price, 260 guineas; 100 guineas was given for La Belle Heleue, 80 for Lady of Branches, and 75 for Pelo. The other cows made from 22 guineas to 56 guineas each. Several young bulls were subsequently offered, but none of them made more than 31 guineas. The total produce of the sale was £1,179 18s. for thirty head; the average obtained per animal offered was £39 5s.

MR. BEATTIE'S IMPORTATIONS.—We learn that Mr. Simon Beattie, who now resides near Bangor in Pickering, besides his valuable services in selecting stock for Mr. Cochrane, has recently imported on his own account several short-horns of great beauty and high pedigree. Among them is the cow Innocent, a fine looking animal of large size, the dam of some excellent stock in England, and descended from Mr. Robert Collins' Cowslip, the ancentress of the celebrated prize heifer Countess of Yarborough, winner of premiums at the Royal and Yorkshire shows. Mr. Beattie has also imported two bulls, Bothwell, 25661, and Lord York, 26766. The latter is half-brother to Mr. Cochrane's renowned heifer Duchess 97th, both having been sired by Captain Gunter's Third Duke of Thorndale. A very superior entire colt, a Cleveland bay bred by Mr. Bruere, of Braithwaite Hall, Yorkshire, also came out by the "European" for the same enterprising importer.

Farmers in the burnt Ottawa district are setting to work vigorously to repair their losses by the disastrous fires of last summer. The Ottawa *Citizen* says that in some places they have adopted the plan of entering into partnership to cut and draw fence stuff for their farms with one team, and send their idle horses to the shanties. They are enabled in this manner to keep their teams for next spring's work and draw timber enough during the winter to rebuild their fences when the snow is gone. The horses in the shanties will be earning money to purchase feed to keep them from the time they leave the shanties in the latter end of the winter until the grass is good. They would feel a great loss in the spring if they should be compelled to part with their teams this fall through want of the means for keeping them through the winter.

Miscellaneous.

Bear-hunting Extraordinary.

In the fall of 1842, I was engaged in inspecting some lands in the township of King, then almost a wilderness in comparison with what it is now. Wild animals were comparatively numerous, bears and wolves especially. One wet evening I stopped at a newly-erected farm house, occupied by an old English family, who had moved on to the land about two months previously. The house was not even chinked or plastered, and great difficulty was experienced in keeping the candles burning, on account of the wind. The settler, who had determined to make his home in Canada, had brought everything he could with him from England, and amongst the rest the ancient family "spit." To the uninitiated, we must explain that the old English spit, now long banished from modern households, was formed of a bar of steel half an inch thick by one and a quarter inches wide. There was a formidable spear-shaped point at one end, whilst the other was terminated by a strong oak wheel, two inches thick and about eight inches in diameter.

About two feet from the north side of the house was the pig-pen, formed of upright rails set firmly into the earth, and built in this fashion to protect the grunters from a bear that had regularly visited the farm for some days previously, and generally had succeeded in carrying off a young half-grown pig, or severely injuring it. Between the house logs and the rails of the pig-pen there was a sort of stile built of cross rails, about two feet long, and this stile thus formed was about three feet high, and intended as a defence to the passage of the pigs during the day, from their yard to the garden.

Just after our supper, composed of potatoes and milk, was over, the same ominous sounds which had accompanied the bear's former visits were quite audible. He had found out the new pig pen, and was walking round and round it, seeking, as usual, to get one of the inmates. The pigs were in an awful fright, grunting and running about their enclosure, and endeavouring to escape, whilst Bruin would every now and then dash his paw through the rails in his efforts to catch hold of a pig. No doubt, a few previous or present scratches added to the general tumult amongst them

The old farmer, who was no hunter, did not know what to do. The bear kept running round the pen, and each time clambering over the stile, quite close to us, and at last determined to use the elevation thus obtained to clambor over the enclosure. The old wife, thus seeing the certainty of ultimate success on the part of the bear, who by this time, with the excitement of the chase, had ceased to pay any attention to us, although sometimes within four feet of us, now became thoroughly roused, and after reproaching her husband and your humble servant for their pusillanimity—and truth to tell she was an awful scold—seized the aforesaid spit, and when the bear next clambored over the stile, she, with a furious exclamation, plunged the weapon into, and about two feet completely through the bear, and about one foot into the pig pen, between the upright rails. The stab was given with a right good will, and the spit driven quite through as far as it would go, accompanied with the usual English expletive of "Drat you, you brute!" and the bear being absolutely transfixed with the spear end of the spit through the rails of the pen, and the other end prevented from being pulled through the logs by the wheel before mentioned, the bear was thus entirely powerless for mischief. He was not killed outright, nor, indeed, so far fatally wounded as to make him quiet. Of course he would have died, but not from the instant effects of the wound. The consequence was that he became furious, and tore about in a frantic manner.

When we found the animal absolutely incapable of resistance, we sallied out, and finished his career with the axe. We feasted from his meat that night and next morning for breakfast. Our former diet of potatoes and milk was entirely thrown in the shade by this wholesale importation of bear meat.

Some may doubt this little anecdote, but it is literally true, and the old man retained the bear skin for many years, and used to boast of his wife's prowess. She, in her turn, certainly used often to jeer at his want of presence of mind, and this little episode formed the source of many an evening's tale.

C.

Tanning Sheep Skins.

The following directions for tanning sheep skins, which we take from the *Prairie Farmer*, will be useful to some of our readers:

For mats take two long woolled skins, make a strong suds, using hot water; when it is cold, wash the skins in it, carefully squeezing them between the hands to get the dirt out of the wool; then wash the soap out with clean, cold water. Now, dissolve alum and salt; half a pound, with a little hot water, which, put in a tub of cold water sufficient to cover the skins, and let them soak in it over night, or twelve hours; then hang over a pail to drain. When they are well drained, stretch or spread carefully over a board to dry. When a little damp, have one ounce of saltpetre and alum, pulverized, and sprinkle the flesh side of each skin, rubbing in well, then lay the flesh sides together, and hang in the shade for two or three days, turning the under skin uppermost every day until perfectly dry. Then scrape the flesh side with a blunt knife, to remove any remaining scraps of flesh, trim off the projecting points, and rub the flesh side with pumice or rotten stone, and with hands; they will be very white and suitable for a door or carriage mat. They also make good mittens. Lamb skins (or sheep skins, if the wool be trimmed off evenly to about one-half to three-fourths of an inch long), make most beautiful and warm mittens for ladies or gentlemen.

A Model Tool House.

"Where shall I find a blacksmith?" said a traveller in a frontier settlement to an individual whom he met on the road. "My horse has lost a shoe, and I wish to have it replaced." "I am a blacksmith," replied the person addressed. "But where is your shop?" "This is my shop," said the son of Vulcan, with a graceful sweep of the hand such as Selkirk may be supposed to have made when he exclaimed, "I am monarch of all I survey;" "this is my shop, but my anvil is a mile ahead."

Almost as extensive as this frontier blacksmith's shop is the tool house of neighbour P. The blue heavens above are its roof; that portion of mother earth included within the boundary fences is the floor, and each field is a compartment. In each compartment may be found one or more farming implements; here a plough standing in the furrow where it was last used; there a harrow gracefully reclining against a fence; cultivators, reapers and mowers, and grain drills basking in the sun; hoes, scythes, grain cradles, rakes, etc., hanging on the trees and fences, whilst about the barn are conveniently congregated rollers, carts, waggons and other implements "too numerous to mention." Neighbour P. is an ardent admirer of the good old adage, "a place for every thing, and every thing in its place."—*Cor. Country Gentleman.*

Mechanical Items.

Horse-chestnut has great lasting qualities when exposed to moisture, and might be made useful for mill work.

TO CLEAN STONE.—Boil a pound of pipe-clay in three pints of water and a quart of vinegar; put in a bit of stone blue. Wash with this mixture, and when quite dry, rub with a dry flannel and a brush of moderate stiffness. Sweep off the fine dust thus raised with a clean hand-brush.

GRINDSTONE SHARPENING.—A correspondent of the *Scientific American* says:—"The grindstone is a self-sharpening tool, and after having been turned some time (if a hard stone) the motion should be reversed. Sand of the right grit applied occasionally to a hard stone will render it quite effectual.

SELECTING GOOD OAK.—When selecting this wood for whippletrees, &c., choose that

in which the concentric rings are close, thick, and uniform, and has, when cut, a glossy varnish-like appearance, and is of a pale yellow or straw-colour. That which has a bluish tinge is generally tough, but is apt to be elastic or springy.

STEEL DRILLS.—A mechanical journal says that drills should be made as short as the work to be done will allow. Much care is required in hardening them, as it is a very easy matter to make them too hard, or to overheat the steel. After the proper temper is obtained draw the temper a little above the point, and there will be less danger of the drill breaking. Do not use oil as a lubricator when drilling steel; water is much better. All that is required is to keep the drill cool.—*Ohio Farmer.*

To Prevent Decay of Shingles.

The following is said to effectually prevent decay in shingles: Take a potash-kettle, or large tub, and put into it one barrel of lye of wood ashes, five pounds of white vitriol, five pounds of alum, and as much salt as will dissolve in the mixture. Make the liquor quite warm, and put as many shingles in it as can be conveniently wet at once. Stir them up with a fork, and when well soaked, take them out and put in more, renewing the liquor as necessary. Then lay the shingles in the usual manner. After they are laid, take the liquor that is left, put lime enough in it to make white-wash, and if any colouring is desired, add ochre, Spanish brown, lamp-black, etc., and apply to the roof with a brush or old broom.

This wash may be renewed from time to time. Salt and lye are excellent preservatives of wood. It is well known that leach-tubs, troughs, and other articles used in the manufacture of potash, never rot. They become saturated with alkali, turn yellowish inside, and remain impervious to the weather. *Ohio Farmer.*

HOW TO GUARD AGAINST DROUGHTS.—A Central Illinois correspondent gives, in an American paper, the following means of guarding against the worst effects of drought: 1. Underdraining, trench ploughing, or ploughing 6 or 7 inches deep. 2. Fall ploughing, or where that has not been done, ploughing as early as the last half of March. 3. Sowing and planting, if not in March, at the earliest practicable hour. 4. Sowing and seeding thinly, and clean and careful system of cultivation.

The rise in the value of farm property has been very general in all parts of Canada for a few years past, but the Chatham *Planet* says the county Kent has far outstripped any other section, now that the fame of "the Garden" has been spread abroad. Farms which might have been bought a few years ago for $10 or $15 an acre, have now doubled in price, and it is no uncommon thing to hear of sales of choice farms at $30, $40, and even $50 an acre. A few days ago Mr. Wm. Williams sold his farm in Dover, (124 acres) about three-fourths of a mile down the river, for the enormous sum of $9,000. The purchaser is Mr. Pullar, at present residing on the mountain near Hamilton. South of the river the Southern Railway is affecting the prices of farm property very materially, but the figures asked are by no means exorbitant.

Advertisements.

ONTARIO
VETERINARY COLLEGE.

TERM for Junior Students will commence JANUARY 4th.
For particulars apply to A. SMITH, V.S.,
Temperance Street, Toronto.
v2-12-1t

CHEESE APPARATUS.

PEDLAR'S SMALL CHEESE VATS

ARE noted for being the cheapest, simplest, and most complete Vat and Heater yet introduced. Vat and Heater, all in complete running order, suitable for a Dairy of from ten to 30 cows, $20.00—delivered to any station in Ontario *free from freight charges.*
Factories supplied throughout with everything of the latest improvement, at a very cheap rate. The best PRESS SCREWS at $2.50 each, delivered.
☞ Before buying, write to
H. PEDLAR, Drawer 5,
Agents Wanted. Oshawa, Ont
2-12-tf.

"A Book of great value to Farmers, with 200 Illustrations. Price $2.50."

THE
Farmers' & Mechanics' Manual.

By W. S. Courtney & Geo. E. Waring, Jr.

WANTED—Farmers, Teachers, Mechanics, and Working Men and Women, everywhere, to sell this work.
Large commissions to canvassers.
Copies sent free to any one on receipt of retail price
P. R. RANDALL & CO., Publishers,
2-12-1t Port Hope, Ont.

Fine Missouri Farm For Sale,

SITUATED in St. Charles Co., 4 miles south-east of Wentzville, N. M. R. R., 40 miles from St. Louis. It contains 600 acres; 450 under cultivation—250 in grass, clover and timothy, 50 in wheat, 150 good timber. An inexhaustible stone quarry. Watered by cisterns and never-failing springs. Good two-story house, containing seven rooms and cellar. Good stables. Granary, corn cribs, &c. Good orchard. This farm is divided into convenient sized fields, with staked and ridered fence. This is a very desirable farm, being in an excellent neighbourhood, 1 mile from church and school. Reasons for selling satisfactory to any one. Price, $30,000. Terms liberal. ADDRESS—
2-12-1t* NOAH HARRIS, Dalhoff, Mo., U.S.

FOR SALE,

"HUNSTON COTTAGE FARM," 2 miles from St. Catharines, in the finest fruit-growing region in Canada. Good frame house and outbuildings. 20 acres fruit trees and vines; 10 acres bush, balance under crop. To be sold much below its value.
ADDRESS—
2-12-1t. P. O. Box 1372, Toronto, Ont.

VINEGAR. HOW MADE FROM CIDER, Wine, Molasses or Sorghum, in 10 hours, without using drugs. For circular address F. I. SAGE, Vinegar Maker, Cromwell, Ct. v2-9-12t

Steel Tooth Sulky Horse Rake

Will do more work, easier, cleaner, and better than any other. Does not gather dust in the hay. Will rake over rougher ground. Is light and strong, well-made and nicely finished. The teeth are fine spring steel, independent of each other, and will yield to pass obstructions. Took FIRST PRIZE at the Provincial Fair, London, 1869. For testimonials, &c., send for circular. As our manufacture for 1870 is limited, orders should be sent at once.
☞ Responsible Agents Wanted in every County. ☜
JAMES SOUTAR & CO.,
Foundry and Agricultural Warehouse,
v2-4-1f. *Chatham, Ont.*

BREAKFAST.

EPPS'S COCOA.

GRATEFUL AND COMFORTING.

"THE very agreeable character of this preparation has rendered it a general favourite. The *Civil Service Gazette* remarks:—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills." Made simply with boiling water or milk. Sold only in tin-lined packets, labelled—
JAMES EPPS & Co.,
v2-11-12t *Homœopathic Chemists, London.*

A Trial Trip. 3 Months for 30 Cents.

Do you love **Fruits, Flowers, Gardening, Designs of Cottages, Ornamental Trees, Shrubs, and Embellishment of Home Grounds?** Take a trial trip for three months or a year with

THE HORTICULTURIST.

Every one who has a Garden should take it.
" *Lady who loves Flowers* " " "
" *Lover of Rural Architecture should take it.*
" *Fruit Grower* " " "

It is the oldest, ablest and best illustrated Journal of Horticulture, Gardening and Rural Taste in America.
☞ Send Stamp for Illustrated Prospectus and Premium List of Valuable Books, Lilies, Gladiolus, &c.
SPECIMEN COPIES ONLY 10 CENTS.
HENRY T. WILLIAMS, Proprietor,
5 Beekman St., New York.
☞ GET UP A CLUB. PRICES REDUCED. ☜
2 *Copies*, $3.50. 3 *Copies*, $5. 5 *Copies*, $7.50
PREMIUMS.
To every Trial Trip Subscriber a choice Engraving—"Gathering Fruits and Flowers."
For a club of Five Trial Trip Subscribers a Fine Japan Lily.
For a New Subscriber, or a Club, a choice of a valuable Lily, Grapevine or Book. ☞ SEE PREMIUM LIST.
v2-11-2t

DOMINION OF CANADA

V. R.

EMIGRATION

TO THE

PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,
DAY LABOURERS,

And all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy and stock a Freehold Estate with the money needed to carry on a small farm in Britain. Good cleared land, with a dwelling and good barn and outhouses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. Farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants, by the Government, is

A FREE GRANT OF LAND

(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain, on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are not liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of abourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz.: Wm. Dixon, 11 Adam Street, Adelphi, London, W. C.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and E. Simaya, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; Jas. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; E. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Brunswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. v2-2-12t.

TO AGRICULTURAL SOCIETIES AND BREEDERS.

For Sale or Hire,

One of these magnificent, high-stepping, powerful and active Cleveland Bay Coaching or Roadster Stallions, six years old, about 16 hands 2 inches high, imported October last by O. E. TEASEL, to whom apply, or to H. PRETTY, Belleville, Ont. v2-12-1t

Sale of Thorough-bred Stock

THE UNDERSIGNED

Will Sell By Auction,

At his Farm in Markham,

On the 18th day of January, 1871,

A very superior lot of Thorough-bred Stock, consisting of 6 Pure Short-horn Bulls, and 14 Short-horn Cows and Heifers, besides a number of very fine Grades.

GEORGE MILLER,
v2-12-1t *Markham.*

Markets.

Toronto Markets.

"CANADA FARMER" Office, Dec. 13th, 1870.

FLOUR AND MEAL:

The produce market generally, owing to the close of navigation and the interruption in the cable reports, has been unusually dull. But few sales have been effected. The following are the quotations:—

Flour—Superfine, $5 00 to $5 25; Fancy, $5 40 to $5 50; Extra, $5 75 to $6 00.

Oatmeal—$5.25.

Cornmeal—$4.00 to $4.75.

Bran—$15 per ton.

GRAIN AND SEED.

The market, from causes already mentioned, has been extremely quiet with very few transactions beyond the supply of mere local demands.

Wheat—Soules, $1 20 to $1 23; Spring, $1 12 to $1 15.

Barley—No. 1, 60c to 63c; No. 2, 50c.

Peas—68c to 71c.

Oats—45c to 46c.

Rye—70c.

Clover Seed—$5 50 to $5.

Timothy—$2 50 to $3.

HAY AND STRAW.

Hay—Owing to the state of the roads, receipts have been light, and the price is higher—selling at from $12 to $16.

Straw—Scarce—from $12 to $14.

PROVISIONS.

Live Hogs—5c per lb.

Dressed Hogs—6c to 6¼c per lb.

Beef—From 4c to 6c per lb.

Mutton—From 5c to 6¼c per lb.

Poultry—Turkeys from 50c to $1; Geese, 45c to 60c; Ducks, 50c per pair; Chickens, 25c to 40c.

Eggs—20c to 25c per dozen.

Bacon—9c to 9¼c.

Hams—12¼c to 13¼c.

Lard—12c to 13c.

Butter—18c to 20c.

Hops—13c.

Salt—Goderich, $1 00; American, $1 85; Liverpool, per bag, 75c.

HIDES AND SKINS.

Hides—7c to 8c.

Sheepskins—30c to $1.

Calfskins—Scarce; nominal at 12½c to 13c.

CATTLE MARKET.

Beeves from 3c to 5c per lb.

Sheep—$3 to $5.

Lambs—$2 50 to $3 50.

Calves—Scarce; from $5 to $10.

London, Dec. 6.—*Spring Wheat*, $1 15 to $1 27. *Red Fall Do.*, $1 10 to $1 15; *White Do.*, $1 to $1 28. *Barley*, 48c to 56c. *Peas*, 65c to 70c. *Oats*, 41c to 42c. *Corn*, 70c to 75c. *Rye*, 40c to 50c. *Dressed Hogs*, $6 25 to $6 65. *Hay*, $8 to $11. *Timothy Seed*, $2 50 to $3. *Potatoes*, 35c to 45c. *Turnips*, 15c to 20c. *Fleece Wool*, 28c to 31c. *Eggs*, 20c to 23c. *Butter*, rolls, 17c to 22c; do., tub, 12½c to 18c. *Cheese*, factory, 10c to 11c: do., new, 8c to 10c. *Onions*, $1 to $1.12½c. *Tallow*, 6½c to 7c. *Green Hides*, inspected, No. 1, 9c.

Contents of this Number.

	PAGE.
THE FIELD:	
Barn-yard Management; A Backwoods Farm	441
Beet Root and Beet Root Sugar; Leached Ashes as a Fertiliser; Turnips vs. Wheat	443
Manure—Gypsum	444
Growing Green Crops for Soiling	445
Drying Roots; Waste of Forests; Gentleman Farming	446
Soot; Securing Fence Posts; Items	447
STOCK DEPARTMENT:	
Preparing Cattle for Fattening; Breeding Cows for the Dairy	447
Working Milk-cows; Stock need the Best of Care Now; Pig Breeding and Feeding	448
The Selection of Breeding Stock; Weaning Pigs.	449
Canadian Horses for Cavalry; Value of Straw as Fodder; Musty Oats; Death of Cattle by Smut; Variety of Food for Hogs; Cut Feed for Horses	450
VETERINARY DEPARTMENT:	
Castration in Horses; Obscure Lameness in Horses	451
Carrots for Horses; Rheumatism in Sheep	452
THE DAIRY:	
Winter Treatment of Milch Cows	452
Winter Dairying; Cheese Factories in Europe; Right and Wrong Way to Milk; Blankets on Milk Cans	453
The Largest Dairy in the World; Roots for Milch Cows; Items	454
ENTOMOLOGY:	
The Grape-vine Flea Beetle (with cut); The Poisonous (?) Tomato Worm	455
The Rape Butterfly	456
CORRESPONDENCE:	
Preserving Woodlands; Working Cows; The Cattle Fly Disease	456
Beet Sugar Making; Teeth a Test of Age; Mushrooms	457
EDITORIAL:	
The Volume for 1870; Farmers' Clubs	457
Re-organizing Farm Life; Diseases of the American Horse; Constitution and By-Laws of a Farmers' Club	458
Report of the U.S. Commissioner of Agriculture for 1869; Report of the Michigan Board of Agriculture for 1869; Artificial Manures; Editorial Notes	459
Notes on the Weather	460
HORTICULTURE:	
Fruit Growing in the Western Division of the Ontario District	461
Storing Winter Apples	462
The American Sweet Chestnut; On Melons	463
Twenty-four First Prize Roses; How to Make a Lawn; Hickory Nuts	464
The Beurre d'Anjou Pear; Protecting Strawberry Plants; The Farmers' Christmas Flowers; The Weeping Mountain Ash (with illustration); Protection against Mice	465
POETRY:	
Sea Ventures; The Winter Snows	466
ARCHITECTURE:	
Building Houses without an Architect; Foundation of Houses on Sand	467
HOUSEHOLD:	
Farmers' Daughters; Paste; Child's Corner	467
AGRICULTURAL INTELLIGENCE:	
Sale of Thorough-bred Stock; Trial of Double Furrow Plough; Short-horn Sales in Britain; Cattle Plague	468
Ploughing Match; Items	469
MISCELLANEOUS:	
Bear Hunting Extraordinary; Tanning Sheep Skins; A Model Tool House; Mechanical Items	470
To Prevent Decay in Shingles; Items	471

THE CANADA FARMER is printed and published on the 15th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (POSTAGE FREE) payable in advance.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director

THE CANADA FARMER

VOL. III. No. 1. TORONTO, CANADA, JANUARY 16, 1871. NEW SERIES.

The Field.

Winter Work on the Farm

The principal work of the farmer during the long, and comparatively leisure season of winter, should mainly be directed towards accumulating a supply of plant food for the next season's crops. Everything that can possibly be done in the way of adding to the manure heap the progressive farmer will aim to accomplish. Swamp muck should be dug out wherever it can be had, and drawn to some place near the barnyard where it can be readily available to use as an absorbent and retainer of the salts contained in the liquefied portions of the manure. If muck be dug and exposed to the air for a year before being added to the manure heap, it will become much more valuable from being dried and partly decomposed. Where it can be had in sufficient quantity, muck often proves a valuable top-dressing to meadows. It can be spread over them any time during the winter, and, though no immediate benefit may result to the hay crop that year, yet as soon as the action of atmospheric agents has so far decomposed the material contained in the muck, which is principally organic vegetable humus, and the plants can eliminate their food from it, a very great improvement will take place in the meadows top-dressed with the muck. This does not usually occur till the second season after the muck is applied, unless it is first decomposed by previous exposure for one season before being spread on the land. The amount of dressing to be applied will depend upon the state of the soil of the meadow. If it be deficient in vegetable matter, one hundred two-horse waggon-loads of muck to the acre will be none too much. Usually, however, half that quantity will be sufficient.

If leached ashes can be obtained within a reasonable distance, all that can be had should be drawn to the farm, and applied as a top-dressing, at the rate of from thirty to fifty waggon-loads per acre, to those portions that appear to be deficient in those salts of which potash is a base. To the clover crop this dressing is especially valuable, and it may be combined with muck to advantage, and plaster afterwards sown on the land, when the clover is well forward in spring.

Every available load of stable manure that can be had from the town or village nearest, or from any hotel in the neighbourhood, should be bought up and brought to the barn-yard, where it should be properly composted before being spread on the land, in order to destroy, as much as possible, the vitality of the seeds of noxious weeds and plants that may have found their way into it. This should be well attended to, otherwise much trouble and loss may result from the too common practice of applying such manure directly to the land, to save the trouble of twice loading and unloading it. Most of the hotels and townspeople who keep horses or cows are usually glad to make an arrangement with the farmer, to give him all the manure made, in exchange for his supplying them with straw for stable bedding; and where this is done the farmer can insure the manure being tolerably free from foul seeds, by supplying only straw from clean crops.

STOCK.—Every animal on the farm should be well looked after during the winter, and care taken that each gets its full allowance of the food given out. Where all are stabled, this is an easy matter, but where they run together in the yard or sheds, the weaker ones often suffer greatly for want of sufficient food, the stronger ones taking more than their share. If the animals have commenced the winter in good thriving condition, their thriftiness is the more easily kept up, but once they lose flesh during cold weather, it becomes somewhat costly and difficult to make them regain it, as an animal in poor condition can rarely be induced to eat and digest more than will go towards keeping up its animal heat while the cold weather lasts.

We are inclined to think large troughs or boxes better than overhead racks for feeding out hay to stock. One great advantage they possess is that they prevent much waste, for an animal eating out of a trough or box rarely takes up more than a mouthful at a time, and eats it up before taking another, while it may often be noticed that when they feed at racks they will pull out much more than they can eat at once, drop a portion at their feet, and trample it in their effort to reach up for the next mouthful. They keep always putting their heads up to the rack, leaving untouched what has dropped before them. If troughs are used they should have high [illegible] them, to catch the waste and [illegible] of hay, which usually consists [illegible] nutritious portion.

Of course all their feed can be cut up, so much the better, and the saving of waste alone in this case will more than repay the farmer for the extra labour of cutting. The cut hay being usually given in troughs or boxes, it is seldom a particle is lost. No pains should be spared to see that all the stock obtain a regular supply of water. If they have to obtain it at a pond or creek, enough holes must be cut in the ice, when it forms, for every animal to obtain a supply without crowding; or what is better, a boy should go with them to the water and see that the older and stronger ones do not monopolize the watering place for hours at a time, while the weaker and younger ones wander away in search of it at some other place.

Animals that are being fed up for the butcher need every care and attention. Regularity in the hours of feeding is of the greatest importance, if we wish to fatten an animal. The food must be so regulated that they will keep constantly gaining in condition without becoming really fat, until near

UNIVERSITY OF TORONTO SEP 7 1954

the time when they can be sold to the most advantage, which is usually about Easter. A month or six weeks before that time, the process of forcing them into fatness by giving stimulating food, such as grain or oilcake, should begin. In Britain, much use is made of certain artificial compounds, called cattle foods, which are given sparingly as an addition to their ordinary feeding stuffs in order to excite their appetite, and induce them to fatten faster, by more largely consuming of what is set before them. Every pound of food an animal can eat beyond what is required for the system goes to make fat.

Let the stables and byres be kept as clean and well aired as is compatible with the comfort of the animals. See that the cattle do not get their skins full of lice or scurf, or become hide-bound. Any animal affected in that way must be taken away from the others, and kept isolated till cured, otherwise the contagion will spread throughout the whole of the stock, and entail a heavy loss to the farmer through the rapid falling-off in condition and thrift thus produced. It is easy to prevent skin disease by keeping the animals thrifty and clean, using a curry-comb occasionally on the hide; but once they become affected, it is often exceedingly difficult to get rid of the trouble.

In feeding grain to horses or cattle it will be found by far the best plan to feed the grain crushed rather than whole. The charge made at the mills for crushing coarse grain is, however, in our opinion, altogether too high; besides the loss of time in going to and from the mill. In Britain they avoid this by using hand machines, that do not grind the grain, but simply bruise it in such a way as to make it readily acted upon by the gastric juices of the animal's stomach, and therefore easily digestible. These mills are portable, and easily worked by either horse or manual power, according to size. Such machines would prove a valuable acquisition on most farms where stock is to be fed for the butcher, or many horses or cows are kept.

PREPARING SEED GRAIN.—Every care should be taken to select the best and most profitable varieties of grain for spring seeding, whether for home use or sale. Next, the seed to be sown should be well and thoroughly cleaned, so as to be free from foul seed of every sort, and be put away where it will not be likely to be meddled with. The best way to do this is to put it in clean barrels—empty apple barrels will do—and head each down tight, writing the name of the grain or variety on each in pencil, and set them away where they will keep dry and sound. To keep the rats from eating holes in the barrels, strew some inferior loose grain on them, or keep some in an open box in the place where they are stored away.

GRASS SEEDS.—Much can be done to improve our meadows, if great care be taken to obtain only perfectly clean samples of clover and other grass seeds. Much of the timothy seed obtained this year is very foul, and great care is needed to have what is to be used properly cleaned before sowing, which can only be done by hand sifting through fine sieves.

Beet Root and Beet Root Sugar

NO. IX.

The object of the papers which have been written on this subject has been to "popularize" the idea that beet root sugar can be produced in Canada, as well as on the continent of Europe, and on the Canadian farm as as an ordinary practical industry of our yeomanry; and this object, it is gratifying to learn, has been thoroughly accomplished Both the editor of the CANADA FARMER and the writer of these papers have received numerous enquiries which show that a firm hold has been taken by the Canadian mind on the subject. Parties at Toronto, Guelph, Elora, the county of Waterloo, and the neighbourhood of St. Thomas, and in numerous other places, are forming themselves into incipient Beet Root Sugar Companies, all eagerly looking for information on the subject, and prepared to act as soon as they are sufficiently informed concerning it, and can obtain skilled labour, or chemical assistance to carry their proposed works into effect. To all such we say, avoid all those, except practical chemists of first-rate standing, who have been used to the old-fashioned, cumbrous, continental system—those who talk of requiring from sixty to one hundred thousand dollars' worth of machinery to begin with; and above all, avoid all "mystery men," who nod and wink and "talk cunning," who say what they can do, but will not tell how they do it, and who claim a sort of divine right over the manufacture, whether in growing the root, or making the sugar. Depend on it, any man who is fit to be trusted with the manufacture will tell his employers not only what he can do, but how he does it. Superior skill will in this, as in all other businesses, command ample remuneration, without the necessity, on the part of the practical manager, of hiding from his employers his processes, and pretending that no one can master them but himself.

The latest discoveries in the art of the growth and manufacture of beet root sugar have wonderfully simplified the process, and these have finally resolved themselves into the best mode of manufacturing, from the juice of the beet root, "Sucrate of Lime."

This, according to the latest English work, is prepared as follows: It has been a fact long known to chemists, that all the alkalies have a special facility, under certain circumstances, of combining with sugar; and of the alkalies, lime, from its cheapness and convenience, is the one best adapted for the use of the manufacture of sugar, whether produced from the beet, the sorghum, or the sugar cane. When a syrup of from 30° to 32° Baume (about as thick as medium maple molasses) containing either sugar or sugary substances, is kept in motion, and carefully slaked and powdered *quick* lime is scattered over its surface, in such a manner as by motion to be easily mixed through the solution, it unites with the sugar of the liquid, and forms a mass more or less insoluble, which, on rest being given, falls to the bottom of the vessel, and is the "sucrate of lime." The lime being dispersed through the syrup containing sugar and other matters, searches for and takes up the sugar of the liquid, and unites with it; but it does not unite with the other matters in the fluid, or, at all events, not in a degree to be mischievous. All the mischievous elements in the beet juice—for instance, such as common salt, potash, the strong taste of the beet root, which consists of a chemical element called "betain," the earthy bitter matters, and in fact, everything but the sugar—remains in the liquid which deposits the sucrate of lime, and which liquid, after the sugar is all extracted, may be fermented for spirit, or run off to the manure heap, to which it forms a most valuable addition, and the resulting sucrate of lime remains in a state more or less pure, according to the process which has been made use of, and the skill and care with which the substance has been formed. This sucrate of lime (we condense from the same work) is always made in syrup which is either cold or only slightly warmed. When formed, it is unalterable, either by time, fermentation, insects, mildew, or the action of the atmosphere. It may be shovelled out on a floor, and allowed to drain dry, or it may be dried by artificial heat. As you make it, so it remains unchanged and unchangeable, except by the "carbonatation" process, which will be hereafter fully described, and which again separates the sugar and the lime.

Sucrate of lime is absolutely insoluble in boiling water, although partially soluble in warm or hot water; therefore it can by washing be brought to a state of great purity, and one that, on carbonatation, as hereinafter described, will produce pure refined sugar at once. This cleansing process is attained by the sucrate being washed in boiling water; thus, after it is first obtained, and the dirty liquor run off, more water should again be added, again boiled, and again run off, until it comes off colourless. Or the sucrate may be washed on a filter until cleansed, but the washing process must always be conducted whilst the water is within a very few degrees of boiling heat, and it always ought to be done at 210 to 212 degrees by the thermometer—Fahrenheit.

For the same reason, the resulting liquor in which the sucrate of lime was formed should always be boiled, and allowed to settle before it is run away, because you in this manner obtain a considerable portion of the sucrate which was either dissolved in the original liquor or else was floating in it in an unsuspected shape, for any part of it which may be dissolved at a lower temperature is again rendered insoluble by a boiling heat. As soon as the liquid, however, reaches the boiling point, the whole of the sucrate is deposited, and the liquor only contains the impurities.

Sucrate of lime thus made contains in its first wet state from 37 to 40 per cent. in weight of water. Of this water 27 to 30 per cent. drains away or dries out by the action of the air, and the dried residue consists of 66 per cent. of sugar, 20 per cent. of lime, and ten per cent. of water, which being a water of hydration, it does not part with at ordinary temperatures. Recollect that this is *pure sugar*. There is no molasses or other uncrystalizeable matter in it. If you find such, on finally reducing it to sugar, you have made them by imperfect manipulation; they did not exist before.

This sucrate of lime may be stored in bins, barrels, or bags. It can be put by with safety until the season of the year, leisure time, or other circumstances enable the farmer to reduce it to sugar; or it may be carried to the refinery or exported abroad. It is an article (when well and carefully prepared) containing a fixed and certain amount of pure sugar, and is of a fixed and certain mercantile value. It is not destructible either by the influence of time or climate. It is simple in its preparation and the process is easily understood, not being so difficult as the manufacture of butter, cheese, soap, or other home productions of a like nature. All its results are of use: the mother-waters contain and carry all the mineral matters, and with the result of the feeding pulp will, when properly applied, keep up the fertility of the farm unimpaired, and indeed add to it most profitably in the assistance such manure will give to future crops, both of beet, grain, grass and roots.

It will thus be seen that the first thing to be studied is the manufacture of sucrate of lime; that well understood, gives the key to success in the manufacture of beet root sugar on the farm. Anyone may, and all who intend to go into the manufacture of beet root sugar must, make themselves master of the best mode of manipulating this article. It signifies little whether, for practice, it is made out of beet root, or from coarse or fine cane sugar, molasses, or maple sugar, anything that contains crystalizable sugar will, when properly mixed with quick lime, yield sucrate of lime, and sucrate of lime when reduced by carbonatation will yield pure sugar. The carbonatation process will be the subject of a future article.

In the mean time, let every one who feels an interest in the matter get beet root, or even mangel wurzel if they cannot get beet. Reduce it to a pulp, and get out the juice, or, if they have no means of doing this, slice the roots into the thinnest possible shavings, soak these shavings in water at about 160 degrees of heat; this will extract the sugar and other soluble matters; as soon as the resulting liquor has been sufficiently boiled down and gets cold or cool, add powdered quick lime until the sucrate is formed. When this process is completed, take the resulting sucrate away, and boil the liquor in which it was made, let the sucrate subside, and draw off the liquor; then add (but always at a boiling temperature) water, and wash the sucrate until it yields no more colour and becomes clean. Prepare this substance twenty times, or until the process is familiar, and all changes are noted and understood; put by the results, and finally carbonate them, and you will then get the pure sugar, or at all events the pure syrup.

You can do all this in pots or saucepans, or the ordinary kettles or boilers of the farm; when you have mastered this process, you will be fit to operate on a mercantile scale, and then you will begin to be able, at a profitable rate, to procure beet root sugar.

NO. X.

Another matter, and which, perhaps, would have come in better before the last paper, on the sucrate of lime process, is the latest discoveries and improvements in evaporation of both cane and beet juice for the manufacture of sugar. This improvement has been forced on the attention of the producers of sugar from the fact that the refiners prefer a concentrated or inspissated juice of either plant, even though it contains all the natural impurities (provided the concentrated juice is not burned or browned), to ill-made, or, indeed, to ordinary well-made browned or crystallized raw sugar. The refiners can deal with the natural impurities better than they can with the destroyed or injured sugar which has been prepared by the ordinary method of boiling down in deep evaporating or defecating vessels. The following is the plan, and it seems to have been in a great measure borrowed from the American instrument for the preparation of maple and sorghum sap, only carried out to a greater length, and made continuous in its operation. By this means all scouring and fermentation of the juice is avoided, as the juice is evaporated as it runs from the mill or press.

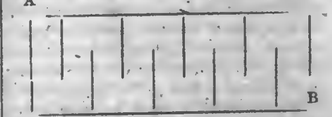
For a large concern, capable of doing about half-a-ton per hour, or thirty hogsheads in the course of a week, of six working days of ten hours per day, the description is given in nearly the following words:—

The machine is called "the concretor," and its object is to evaporate as nearly as possible to perfect dryness large masses of juice in the shortest possible time and at the least cost of fuel. A simple illustration of the way in which this is accomplished may be seen in the effect of throwing a pint of water upon a stone pavement, or even on boards exposed to wind and sunshine: every drop of the water will be dried up long before the same quantity could be boiled away in a small deep pan, even on a very hot fire, and yet no particle of the water would at any time have been hotter than the warmed flags or boards.

The machine consists of three principal parts—the tray, the cylinder and the drum.

1st. The tray is placed as close as possible to the grinder and press, and receives the juice direct from the latter. The tray is of cast iron, 30 feet long and 6 feet wide, and about 6 inches deep. It is crossed by ribs or ledges, which run from one side nearly to the other, the vacant space being on alternate sides of the tray It is not cast in one piece, but in several, which are joined together. They can, of course, all be made from one pattern, and made to join with screw-bolts and nuts, so that it can be lengthened if required, or any part broken can be replaced.

The accompanying figure may serve to give a notion of it. It can be made of greater or less length to suit the size of the purposed works, although we think the length in all must be the same, and the capacity be governed by the width.



This tray is set up at a gentle slope, so that the juice received in its upper end at A flows in a continuous stream of not more than about half an inch deep, backwards and forwards from side to side, to the lower end B. The whole length of the passage in the machine, reckoning it in the length of the course of the liquor, is 140 yards.

This tray is set flat upon two walls of brickwork, and the firing takes place under the tray at A, while the flame and smoke of the fire pass to the other end, and are carried off by the chimney. (In the American plan the entire tray and fireplace and chimney are constructed of sheet iron, and the whole stands on two rockers, so that by raising either end the attendant can hasten or retard the flow of the liquor as he may think necessary.) The flame of the furnace spreads evenly along the bottom of the tray, being confined by the brick walls, and the draught is perfectly clear and uninterrupted. The time occupied by the passage of the juice through the tray, in its serpentine course, is about five minutes, in which short period eleven-sixteenths of the water are driven off, and the juice has become *siting* It will thus be seen that the first rash heat of the fire is applied to the thin juice,

whilst in rapid motion, and while it is so thin and liquid that there is no fear of burning, and as it becomes thicker and more liable to burn, it is removed farther and farther from the fire.

By means of this tray alone, the juice can be so concentrated as to render it safe from decay or fermentation, and where the "sucrate of lime" process is to be used, by making the tray long enough, the juice can by these simple means be rendered ready for conversion into pure sugar by the sucrate of lime process; but where the operator wishes to reduce the juice still further, and finally into a perfectly hard and dry mass, which would not be necessary in ordinary cases, the following continuation of the machine is added :—

2nd. This continuation of the machine is called "the cylinder." It runs on an axis, is open at both ends, is twenty feet long and three feet six inches in diameter. (This size is for the large works before mentioned). In England it is made of copper, but here it would be made of sheet iron or boiler plate, and would be like a steamboat chimney laid on its flat, with a spindle through it fastened by arms to the ontside or shell. It must be made to revolve slowly (about six times in a minute) by machinery. It is also set on such a slope that the liquor will gradually work forward to the far end of it, although each end is open, so as to receive the thick juice at one end, and deliver it still further evaporated at the other, yet the ends are so turned in by a ledge projecting towards the axis, that the cylinder will hold a considerable amount of fluid. The liquor efficiently evaporated in the tray is delivered into the end of the cylinder, which is then set revolving. As it does so, it carries the stuff up on its inside skin, and as soon as it reaches the top it drops off. Through this cylinder a blast of hot air is forced with a fan. The air may be heated by an outside skin being put to the iron chimney of the steam engine, and being forced in at the top of the skin, and allowed to pass out at the bottom, is strongly heated by the waste heat of the iron chimney. This hot blast is conducted through the cylinder, and although so hot, never burns its contents, as the particles of water carry off the heat. Where hot enough, it should be continued over the tray. The outside of the cylinder is also heated by the waste heat from the tray, or by a fire made on purpose, the cylinder being set in an arch of either brickwork or sheet iron. The action of the heat outside, and of the heated air passing through the inside, evaporates the water in the syrup most completely, and the stuff is delivered from the far end of the cylinder in a state which, when it becomes cold, is almost solid. But it may be further dried, when required, by a similar process, only the stuff now called concrete is then exposed to heat and hot blast on the *outside* of a drum, and scraped off by a fixed scraper.

In Canada, for many a year to come, we shall not require anything further than the tray and cylinder. It will be seen that this work proceeds rapidly and surely without hands, and with very little attendance, and by the time the liquid has run its course from the first end of the tray to the last and of the cylinder, it is reduced from thin water to thick syrup, which is in a state fit for keeping and storing, and for the operations of the refiner. The duration of the process of a portion of the liquid passing from one end to the other of the machine is less than fifteen minutes, and during that interval no part of it is burned into molasses or sugar that will not crystallize, or as it is called by sugar manufacturers in England and on the Continent, "Fructose."

The colour of the concrete from cane juice is a pale greenish yellow, and when mixed with water becomes cane juice again, as pure as when expressed from the cane. This shows how little the process burns it.

The concrete from the beet juice will, of course, contain all the salts, potash, &c., and these must be got rid of by the sucrate of lime or other processes; but for the ordinary farmer, the juice will be reduced to a rough impure syrup, strong enough to keep, and will then be casked up and command a ready sale, or it can be purified at a leisure time.

The great difficulty in all beet root sugar works has always been the alteration of the juice by fermentation and souring. Like all juices, the beet juice contains within itself the elements of fermentation, and where it was necessary to express into vessels that would form a store of the liquid until the defecating kettles were ready, fermentation to a greater or less extent was certain to ensue.

Souring also took place at every stage and in every corner. The large beet root sugar factories on the Continent have floors made of marble, with close joints, and every angle and chink so arranged that they can be easily and thoroughly cleansed; and notwithstanding all precautions, souring in some parts, and fermentation in others, will occur, and the only cure is a temporary stoppage of the works, and every instrument and vessel which comes in contact with the juice being thoroughly limed and scrubbed with lime water. All this trouble and risk is got rid of by the tray and cylinder The work, of course, continues night and day; and if it does not, both tray and cylinder must be thoroughly cleansed, before allowing them to stand.

The foregoing is the plan as set forth in the latest English books. The American system of rockers on the tray is, no doubt, a good one; and if not used, provision ought to be made in setting up the tray for altering the level as required. This may be easily done by allowing the brick walls which confine the fire to extend up the sides of the tray, and the tray itself to be supported on iron rods crossing from wall to wall. These rods should be capable of being raised and lowered by a screw, so that the attendant may be able to meet the wants of the juice as it gets thicker in its progress along the tray to the cylinder. There are several other points in which the process might be improved, and the risk of burning lessened; but it is always safest to try known and proved plans in the first instance, and afterwards to attempt improvements gradually.

Our Roads.

BY ALAN MACDOUGALL, C. E.

I.

The study of the histories of any of the countries of the world, whether from the very earliest historical records, or those of the times of the Roman Empire, down to the daily reports of the progress of enterprise and civilization in the New World, tell us that the first thing man does when he begins to wage war on the elements of nature, and, bringing the earth under his subjection, makes it obey the great law, "Be thou fruitful!" is to make a means of communication with his fellow men, and these ordinary means of intercourse or communication are commouly termed roads.

Formerly, people were satisfied with a mere track over hills, through swamps, or by the sides of them, as best suited their convenience, so long as they were able merely to get a horse carrying a pack on its back to go along them. But as their countries increased in wealth and importance, these tracks were formed into magnificent roads, many of which are to this day living memorials of the greatness of nations that have passed away.

In many parts of the civilized portions of the Old World are there to be seen roads that are to-day marvels of engineering talent as great as our own, and may be more lasting than many New World enterprises. The patient industry of the Chinese, the ambitious and solid wealth of the Roman Empire, the bold and daring design of the great Napoleon, in taking a road across the Alps, as well as many instances that could be quoted from the history of the island home whence many of us have sprung, and others familiar, I doubt not, to many of my readers, are matters of history, and are noted, and remarked upon, by all travellers to the present day; matters they can never tire of, as no one can ever lightly esteem the works of a race that have lived in what we now-a-days term barbarity, yet were able to put up structures that have for hundreds of years battled more successfully against the great enemy Time than the designers and constructors of them were able to do. These grand and lasting memorials to the greatness of bygone ages are not lessons to be lost upon us, and although it is not intended to draw

any comparison with them for the purposes of these papers, reference may occasionally be made to some of them.

Like everything in this world, a road must have a beginning. Started from a mere bridle track or a bush road, many of the finest roads of the world have, by the labour of succeeding generations, been brought to their present state of perfection. Considering the ages in which they were made, and what we now call the want of civilization, these roads progressed slowly as the wants of the age required. Doubtless the people who lived in the "good old times" considered themselves what is now called "very fast," and thought stage coaches and macadamized roads wonderful inventions. But in these days of steam, electricity, and ocean cables, the wants of the day are far more keenly felt than many of my readers can remember to have felt them thirty years ago.

We can read with astonishment of travellers deploring, about the end of the last century, the agonies of the road from London to Birmingham—roads that were on a par with some of our back country roads, full of ruts and bad bridges; but are, and have been, probably in the memory of this generation, marvels of skill and perfection.

In the opening up of a country the first thing necessary is the way of communication, and the sooner one man is able at all times to get to his neighbour, and to do so easily, the sooner will that particular district, township or county, advance. In the prosperity of a district, every one in it is individually concerned, quite as much as in the improvement of his own personal property, therefore it is the more necessary that everybody put his shoulder to the wheel and help the roads forward.

Every district, or let us say county, is not in the same condition with regard to improvements, just as every man is not as well able to spend money as his neighbour; yet a man who cannot spend money at once on his property can, by his industry and toil, expend, over a number of years, a sum corresponding to the sum laid out by his richer neighbour. His property is thereby benefited, and he does not grudge his outlay. So with a county; it may not be able all at once to spend $10,000 on making good roads, but by every one in it doing something every year, probably in ten years it reaps the same benefits that it would, had it been able to expend the $10,000 before, and also, having no debt, is now, perhaps, in a condition to spend that sum of money.

In the countries of the Old World, there were always found men of large means and fortune, or possessed of great political power, who were able to command large sums of money for various purposes. We all know of the large tracts of land in Britain and elsewhere, owned by single individuals, which have been in their possession probably for hundreds of years. These men were able to spend a large sum of money at once; but in counties where every man has only got a small portion, and came only with the fortune of a robust constitution and strong pair of arms, as he progresses in the world so everything around him must progress. Step by step he goes on, learning as he goes the value of improvements in implements of husbandry, but too seldom learning the benefits of improved roads, or too callous, if he knows, to do anything whereby he, as well as his neighbour, is to be benefited, and the progress of his county and country promoted.

Arrangement of Farm Buildings.

Convenience and simplicity should be more studied in the arrangement of farm buildings than symmetry.

Neatness, compactness and warmth are the great points always to be kept in view by the farmer in laying out or adding to his cattle houses or barns.

"Time is money," and any arrangement which will render the work of feeding and attending on cattle easier, and to be performed in less time, should be carefully carried out, especially in Canada, where seasons are short and wages high. Besides, if men perceive a neatness and compactness in the internal fitness of the buildings, and a desire to make their work less onerous, they will generally take a pride in the superiority of their employer's arrangements over those of the neighbours, and will attend more carefully to and carry out more thoroughly the operations of winter feeding.

Such buildings as are erected should be upon the north-east and west sides of the yard, leaving the latter open to the full benefit of the morning and mid-day sun.

In Canada the bank barn is undoubtedly the most convenient, giving a great capacity in room on a comparatively small area.

Homesteads, however, vary with farms, and it would be as inconsistent to dictate the plan of the farm buildings as of the farms. There are, however, certain points or general rules which the farmer will do well to bear in mind ere he commence either building new accommodation or adding to former barns or outhouses.

Convenience and economy of space are almost synonymous terms, and these are the great points to be kept in view. Good ventilation is as essential to the well-being of stock as of man.

Cattle should be kept in a warmer stable than horses and sheep, should be sheltered from all damp, but confined in open and cool steadings.

It is a great mistake to stable working horses under a bank barn, for such stables are always very warm and usually dark. When horses thus stabled are taken out, they feel the change of temperature most keenly, and unless treated with far more caution than is usually accorded to teams upon the road, are sure to take cold. The rapid transit also from comparative darkness to the glaring light of a bright winter's day is most injurious to the eye, and very frequently produces weakness in that organ, and in many cases lays the foundation for periodical blindness or ophthalmia, too often the forerunner of total loss of the eyesight.

A thorough ventilation of all stock houses is necessary to carry off the ammonia and other noxious odours which emanate from animal dung.

To return to the main barn. Such should be built strongly and capacious, for a large barn is put up comparatively more cheaply than one in which the farmer may be pinched for room. Barns should not be battened, to allow of the grain and hay receiving as much air as possible upon all sides. No barn should be built without one or more shuttered ventilators upon the roof, to allow of the passing of a thorough draught from sill to rafter.

The position of the granary is, I think, too little thought of in Canada. The granary is usually built in under a swing beam, "cabined, cribbed, confined," very hot in the warm weather, ill ventilated, ill lighted, and with no circulation of air.

Not only are all these conditions very injurious to large bodies of grain, but much valuable space in the barn is wasted during the harvest, when we require all our barn room for the unthreshed grain, and usually have our granaries almost empty.

I should advise the grain room being built in the shape of a lean-to to the barn, or better still, as a detached building, allowing the access of air between it and the barn, if it be only in the space of a few inches.

Every granary should be thoroughly lighted, and have a ventilator in the roof. It should be divided into suitable bins, leaving a good gangway between, with sliding boards to take out in the side bordering this gangway. Each bin should be raised an inch or two above the main floor, to allow of a thorough circulation of air; and it is well worth the expense to build the bottom of our bins by laying fine wire netting upon narrow and deep joists about two inches apart, running from the gangway to the opposite wall, thus promoting a draught between each joist through the netting, and up into the heap of grain.

This will help to keep out the rats, and keep grain which may have a tendency to to heat quite cool.

These fixings will no doubt be set down by many farmers as creating "too much bother," but the saving of a very few bushels of grain will well repay both the time and money expended in their arrangement.

I went into a farmer's granary the other day, and found that he had the walls and

the floor covered with tin, to prevent, he said, the access of rats. I was almost stifled, and yet he was surprised to find a lot of barley, which he had cleaned and put away, heating and discolouring rapidly. Which would do the more harm? The rats (who, by the way, might be kept down by other means) eating and carrying away their small quantum of grain, or the heat, which will destroy in a few days hundreds of bushels?

The detached granary may easily be kept free of rats. Raise it upon cast iron stands; or, easier still, upon posts, encircled by large glazed tiles cut in two, such as your correspondent, W. H. Mills, uses to protect his fruit trees from mice. There will then be only the door from the barn to watch.

This question of providing constant access of air to grain in heaps, good ventilation, and plenty of light, is one of very great importance to the farmer, and unless he attend to and provide for these conditions, he will assuredly lose as much produce as would, if converted into cash, build him a dozen granaries.

C. E. W.

How to Obtain Ammonia.

It has been demonstrated in experiments carefully conducted over a series of years, in England, that the wheat plant, during the course of its growth between seed-time and harvest, *destroys ammonia*. That is, a larger quantity of ammonia is required to perfect a crop of wheat than the entire crop, both straw and grain, contains when matured. It was found that to ensure a successful crop of wheat required the plant consumption of five times as much ammonia as the crop grown will yield. Now, the wheat plant is dependent almost entirely for its supply of ammonia upon what it can eliminate of it from the soil in which it grows.

Further experiments showed that clover, peas, beans and turnips do not destroy ammonia during their growth, but obtain what they need from the atmosphere, and retain it in their tissues. Hence it comes that one of the chief means of supplying any deficiency of ammonia in the soil for the production of wheat is to be found in turning under green crops of clover or peas, or burying the tops of turnips, beans, &c., left on the land. On a farm, therefore, where wheat or barley is grown extensively, the soil soon becomes exhausted of ammonia, unless that is supplied by artificial means, either through the feeding of stock in order to supply manure to the soil, or the rotation of crops that, not destroying, but rather attracting ammonia from the atmosphere and retaining it, help to add it to the soil. An average acre of clover or peas contains in roots and tops about 80 pounds of ammonia, equal in value for a wheat crop to twelve dollars.

Whether this clover crop be ploughed under as a green crop, or cut and fed to animals, and afterwards returned in the shape of manure to the soil, it would result in giving precisely the same amount of ammonia. But the roots contain the largest proportion of the ammonia, and these could not be used as food for stock. Still, if we grow clover as a renovating crop, cut for two years, and feed ont the tops to stock and afterwards return the manure so made to the land, and together with it plough up, and so destroy and subject to decomposition the roots of the clover, we shall obtain a sufficient amount of ammonia in the soil to mature a heavy crop of wheat or barley. Hence it is evident that the success of the grain-grower (for barley, oats and corn require nearly as much ammonia in the same way as wheat) will be mainly dependent upon two things—either his ability to make or procure sufficient manure to make amends for the loss of the ammonia destroyed by the grain crops; or to grow alternately, crops of clover or peas, turnips, &c., in order to furnish the ammonia partly through their attraction of it from the atmosphere to the soil, or the turning them under as a renovating crop.

A farmer of Springfield, Ohio, recently picked 400 bushels of cranberries from three acres, and sold the lot for $1,520.

The estimated area in hops in England is now 65,600 acres, and is gradually increasing.

One marked difference in English and American farming is forcibly presented by a correspondent of the *Country Gentleman* in the statement that an English tenant farmer, liable to be dispossessed of his place on six months' notice, buys corn brought 3,000 miles with which to fatten animals, doing this chiefly for the sake of the manure, while an American farmer owning the land he works, will sell even his hay, and feed no animals for the purpose of enriching his own land.

TOP DRESSING ON GRASS LANDS.—We have frequently called the attention of our readers to this method of sustaining the fertility of meadows. The compost should be fine, so as to be spread evenly on the surface, and find its way readily to the ground in small particles ready to be dissolved and carried down to the hungry months below that are reaching out in every direction for food. Manure or compost applied in lumps is of very little value in enriching the soil. The surface manuring should be done early, in order to have the best effect on the crop of next season. If the manure is reduced to the proper condition of fineness, and is not already exhaling its valuable properties in the process of fermentation, there is no occasion to fear loss by evaporation. Its nutritive properties will be drawn downward to meet the requirements of the growing grass.—*Vt. Record and Farmer.*

Stock Department.

Report of Judges on Live Stock at the Royal Agricultural Show, 1870.

An official report on the exhibition of live stock and the trial of implements at the Royal English Agricultural Society's Show, held at Oxford, last July, has just been published in the second part of the Society's journal, from which we propose making a few gleanings for the information of our readers. The report is exceedingly elaborate, and abounds in matter of the highest interest to the inquiring practical agriculturist. We propose in the present paper to confine our remarks and extracts to the department of live stock.

It is noteworthy that the first exhibition of the Society was held in the classic city of Oxford, thirty years ago, when seven acres of ground more than sufficed for its requirements, whilst on the late occasion ten times that area was fully occupied with many miles of shedding. One feature of the Society's annual show is deserving of special notice and commendation: as one Sunday at least occurs during its proceedings, arrangements are made on the grounds for the reverent conducting of Divine worship. On the last occasion two services were conducted by the Bishop of Oxford and one of the Canons of the Cathedral, when at least 500 persons, consisting principally of servants and others in charge of stock, &c., formed the congregation, morning and afternoon. The preachers made themselves clearly understood by the least educated of their audience, leading us to believe that these services are as effective as they are interesting.

It would appear that the late Oxford meeting was peculiarly distinguished for the very large amount of sales that were made on the grounds, both in stock and in implements. The report speaks, in reference to the former:—"Probably at no previous exhibition have buyer and seller been brought together so frequently with success, and the prices realized for many of the animals at once bespeak their superiority, and indicate the liberal spirit of the purchasers, of whom there were some of the most enterprising present from the United States, Canada, and Australia. Shorthorns and Herefords seemed most to take their favour, and our choicest specimens in form and blood—Bates as well as Booth, and other kinds—were purchased for the above colonies. They are surely entitled to possess them, with our best wishes for their success in distant climes, for the weighty considerations left in exchange. The enormous or almost fabulous prices realized of late for Shorthorns are beyond all precedent. Two thousand guineas for a seven year old cow was offered and declined; the writer has it from the best authority. This priceless treasure is Lady Fragrant,

(Extract of Gold, or The Nugget, would have been equally appropriate names) owned by that well-known breeder, Mr. T. C. Booth, of Warlaby. Selections were made from the same herd at 1,500 and 1,000 guineas each. Duchess blood, too, now so rare, has not escaped the compass of these spirited visitors, as Mr. Cochrane, of Montreal, has charmed away two of Captain Gunter's gems, both yearling heifers—Duchess 101st and Duchess 103rd—the consideration being no less a sum than 2,500 guineas! The first and second prize yearling heifers at Oxford also found buyers at 500 guineas each. The first, an undeniably good one, owned and bred by Mr. D. McIntosh, of Havering Park, Essex, goes to Australia, and her second competitor, bred by Mr. Dudding, follows suit to America. All this, and much more that cannot be given in detail, should be highly encouraging to breeders, and in the absence of Continental buyers, the vast amount of business done is the more astonishing."

The Live Stock department of the Oxford show comprised 441 cattle, 203 horses, 550 sheep, and 192 pigs. All classes, except horses, of which there was a considerable diminution, were in excess of the Manchester meeting the year previous, at which unusual attractions in the way of hunters, hackneys, &c., were offered by liberal prizes of the local committee.

The Royal, for some cause or other, has never been very highly distinguished in the department of horses, the Yorkshire Society's show frequently excelling it both in number and quality. One of the judges writes as follows of the Clydesdales:—"We have always looked upon these animals as good on the land, and superior to most for heavy work on the road, but if the specimens brought before us are a fair sample of the breed, their reputation is not likely to be increased by this exhibition. At any rate, I must express my disappointment at finding so many inferior animals in the short entries which composed this class." If the writer had attended any of the Highland Society's shows, where the Clydesdales often form 90 per cent. of all the breeds on exhibition, he would most probably have seen enough to modify very largely his opinion. "Years ago the feet of the Suffolk horses were considered their weak place; they will now bear comparison with any other breed exhibited, and certainly the Clydesdales and 'shire-breds' at this meeting were far worse in this respect than the Suffolks. My notebook shows many marked as having indifferent fore-legs, light in substance, and with a retreating cannon-bone—a formation weak and unsightly! This appears to be a prevailing fault. Some few others had bent hind-legs and coarse hocks."

Of the Suffolk horses the report goes on to speak as follows:—"The Suffolk has long been a recognized and distinct breed, and, perhaps, with the exception of race-horses, none have been bred with more care and attention. Every distinguishing point for which the breed has long been valued has been preserved and cultivated, and the prevailing characteristics of colour, quality, and compactness of form, with activity and strength, have never been lost sight of. Distinctive feature at first sight gives the breed a great advantage in attracting the attention of a casual admirer, but has little or no weight with those accustomed to sift the merits and balance advantages in individual specimens of various breeds. Competition beyond their immediate district has brought about vast improvement in this breed. Want of action, bad feet, and bent hind legs, are no longer noticeable in the Suffolk entries, and no meeting has given better proof of this than the one just held. We hear breeders of Clydesdales, Shirebreds, and Suffolk, holding to their own with unflinching pertinacity; as agricultural horses each are subject to criticism from the best of judges at their meetings; and, unless the listener is bigoted to his favourite breed, he will quickly throw aside his prejudice and admit that no one kind of horse is suited for every locality, and he will probably begin to notice the fact that where distinct breeds have for ages been associated with certain duties or certain districts, they have not been selected for the work without a substantial reason. Of what use would the immense weight of a slow, heavy action of the Shirebred be on the soils of Suffolk? and no one would recommend the farmer, whose soil is of the stiffest clay, and who breeds for the railway, the dock, or the brewer's dray, to hire a "Harwich Emperor" for his mares, or purchase a "Bury Empress" to fill a vacant stall in his plough stable; and the very weight of the Shirebred would distance him with the quick action of the Suffolk in his own county; while the Midland counties man would talk of the tenacious toil, and ask if the Suffolk horse, hardy and active as he is, could stand the work required for such a district? The Clydesdale breeder would point to the quays and streets of Glasgow, and call for an animal better suited for the work he would there find. These are questions safer left to those whose experience should teach them what their own requirements are. As breeders our business is to eradicate unsoundness, perfect the form, and preserve the characteristics which should denote the breed we adopt; as judges we felt our duty was to point out the individual specimens which give the best evidence of the breeder's success, as tested by such a principle."

The Channel Island Cattle classes made a great and interesting display, and are said to have much exceeded in importance any recent exhibition. These beautiful and useful animals appear to be winning increased admiration every year, and they are highly prized in private dairies, yielding large supplies of milk, exceedingly rich in cream and butter. These cattle are scarcely known in Canada, but they have of late been making progress in some sections of the United States, where, as in Europe, they are much esteemed for their dairy qualities. At the Oxford show some Alderney heifers were sold for 70 guineas each, a sum indicating the high repute in which the breed is held by practical men. It appears that the Society has been in the habit of arranging the Jersey and Guernsey cattle in the same classes, whereas there are very distinctive points of difference between them. The judges respectfully submit to the Council, the advisability of making a thorough distinction for the future in the classes hitherto denominated "Channel Islands Cattle," inasmuch as the Jersey and the Guernsey breeds, for which the classes are intended, are entirely distinct, and have not the slightest degree of affinity.

The sheep department was of a very high order; the display a wondrous one with few exceptions; the various classes have never been equalled in number or quality. The local or "Shire" breeders certainly surpassed themselves, and did battle in tremendous force on their native soil. The fine old standard breed of Leicesters, going back to the days of Bakewell, is always pleasant to look on. Leicesters unmistakably show pure breeding and high quality, in a degree to make their "landmark," whereby to correct the deformities resulting from injudicious crossing in other directions. Indeed, the owners of pure-bred flocks, of whatever kind, should, in this respect, be regarded as public benefactors, without whose care and help all would become chaos and confusion.

The Report goes on to state that "The Downs" one and all presented a most imposing sight, for in *them* lay the strength of the sheep department. It was not without reason that the efforts of the Oxford Down breeders should be looked to here, on their own ground, with special interest; nor can any impartial critic deny the meed of praise due to them for such a display, both as regards numbers and quality. Next in order came the beautiful Southdowns, the perfect type in form and character, at once arresting the attention of every lover of beauty. Throughout this high-bred class could be observed a uniformity so much wanting in the kindred classes of Oxford Downs, the breeders of which may well take example here for their edification.

The Shropshire Downs have been steadily rising in public estimation of late years; they are not wholly unknown in Canada. The subjoined remarks will not be without interest on this side of the Atlantic:—"This very useful class of sheep is gaining in popularity, and it is not surprising that is so, for in outline they dimly resemble the more aristocratic Southdown. They are hardy, sound, and prolific, and appear to flourish in all districts where they have been introduced. Numerically they were superior to any class exhibited, and this position they

have held for some years at the Society's shows. Their value will, however, be much enhanced in public estimation when their breeders shall have accomplished the removal of that stain which has been so frequently and so forcibly pointed out of late years, viz., the want of uniformity in type and character; for black, light and speckled faces and legs are seen side by side, with close and open fleeces; thus marring their otherwise good appearance. This should not be, and if their breeders, as a class, desire to hold, as they may do, a foremost position, a "local parliament" of the most intelligent breeders should be called, to determine among themselves some standard or true type to aim at, and once agreed, let no other be recognized; then, and not until then, will the Shropshire Down hold its proper place as a distinctive and high-bred sheep." The report concludes by suggesting to the breeders of Shropshire sheep the extreme importance of endeavouring to establish more uniformity of character, by aiming each at the production of animals possessing the *same qualities*, which all should endeavour to perpetuate, viz:—

1st.—That a Shropshire sheep should possess great depth of firm flesh, indicated by a good muscular neck, straight and wide back, with ribs well sprung, and a heavy leg of mutton.

2nd.—That the face and legs should be of a uniformly dark colour and well covered head; the fleece thick set and free from grey.

Winter Feeding of Farm Stock.

There are two principles involved in the matter of feeding stock in winter. One of them is that sufficient carbon should be supplied to keep up the animal heat of their bodies. Those substances which supply this carbon are principally vegetable, and are known to chemists as carbonaceous compounds. Among them are starch, sugar, and gum, which compose the chief part of the grasses, roots, and some kinds of grain, in conjunction with the elements of water to a greater or less extent.

If we take carbon, which is only a scientific name for vegetable charcoal, and burn it in a stove, it gives out an amount of heat proportionate to the quantity burned. Now, on a cold day, as is well known, more fuel is required to keep the stove at a given heat than on a warm day, and in proportion as the cold is greater so is the consumption of fuel to radiate out such an amount of heat as will counteract the effects of that cold on the animal system. The carbon contained in the food consumed by animals is burned in their bodies in a manner analogous to the burning of fuel in a stove, and gives out heat in the same proportion.

The temperature required in the bodies of all warm-blooded animals is the same at the equator as at the pole, namely, 98 degrees, that being the normal condition of heat required to keep their circulatory system of blood in a healthy state.

Now, as we cannot well supply artificial heat to their bodies from without, we must keep them supplied with sufficient carbon to generate heat by decomposition within their bodies. This can only be done through the food they consume, and the colder the external air, the more food they will require in order to produce sufficient heat within. This heat is generated through the agency of the process of respiration. Hence they require more food of a carbonaceous character, and will consume more of it during cold weather than in warm.

To keep up the animal system, therefore, in a healthy and thrifty state, they require sufficient carbonaceous food to maintain the animal heat of their bodies to a certain degree of temperature, namely, blood heat.

Now, if the animal system is well nourished, healthy, and full of muscles and flesh, whatever carbonaceous food is consumed beyond the requirements of the animal to maintain the heat of its body, will be stored up in the system in the form of fat.

But the system requires somewhat more than carbon to keep up its functions of vitality. It also requires nitrogen, which is an organized substance in vegetables, analogous to flesh and muscle in animals. It is believed by many chemists that vegetable nitrogen is converted into flesh in the animals without first undergoing the process of decomposition. From this it has been maintained that the nutritive or flesh-forming quality of the food consumed by animals is in direct proportion to the amount of nitrogen it contains. The leguminous tribes of plants are rich in nitrogen. Clover contains more flesh-forming elements than any of the grasses proper. Peas contain three times as much nitrogen, in proportion to their amount of carbon, as Indian corn. Bran contains more of it than fine wheat flour. Hence it comes that in feeding young animals, or those in poor condition, when we desire all excess of food to go towards forming flesh and muscle, and add to the size and weight of the animal before it attains maturity, we must give a due proportion of nitrogenous food along with the carbonaceous, otherwise any excess consumed beyond what is required to maintain the animal heat of their bodies will go towards laying on fat, without there being a fair proportion of muscle to form the lean.

But in animals already full fleshed, arrived at maturity, and therefore in high condition for feeding for the butcher, we must endeavour to lay on fat by feeding an excess of carbonaceous food, of which corn probably contains the largest amount in proportion of any grain we grow.

When we put up young pigs to fatten they need peas in order to supply substance for their growing muscles; but if we put up a full-fleshed grown hog to fatten we shall find most profit in feeding Indian corn. So if we want our horses or oxen to be able to do hard work, we must give them such a proportion of nitrogenous food as will enable them to replace the constant wear and tear of their muscles, but if we want to feed them up for show or sale we can give them softness of feel and a glossy coat by feeding Indian corn.

In order to enable farmers to make their calculations as to the proportionate value of some of the leading crops they grow, as regards the feeding of stock, we give a table showing the relative proportion of carbon and nitrogen in such as we can find chemical analyses of, premising that they are not to be looked upon as more than an approximation, as different authors give varying results as regards their analyses:—

PROPORTION OF CARBON TO NITROGEN.

	CARBON.	NITROGEN
Wheat	59	10 to 15
Barley	69	6
Oats	80	13
Rye.....	69	16
Indian Corn ..	84	15
Buckwheat	50	14
Peas	40	23
Beans	44	23
Corn Fodder ..	50	5
Meadow Hay..	40	7½
Clover Hay....	40	9½
Pea Straw.....	45	12
Wheat Straw..	35	2
Wheat Bran....	69	16
Potatoes	12	½
Turnips.....	10	1
Carrots	10	2

Where there is a large proportion of starch in the food, as, for instance, in potatoes or Indian Corn, there is a great advantage in cooking the food before feeding, for the reason that the heat of the stomach is insufficient to burst the feculent grain of which starch is composed, and unless that is done, much of it passes through the animal in an undigested state.

Black Noses in Shorthorns—Are they a Proof of Impurity of Blood?

SIR,—As short-horned cattle are yearly becoming more and more popular with the farmers of Canada, and the remark is occasionally made that "no pure Shorthorn should have a black nose," I copy an extract from the Shorthorn correspondent of the English *Farmers' Magazine*, remarking ere I do so, that 2nd Lord Oxford, exported to England by Mr. Sheldon, had a very dark nose; also that one of the Duchess cows, bought at Earl Ducie's sale for a very high figure—Duchess 64th, I believe—had a spotted nose; and it is in discussing this question that the correspondent says: "The black nose upon a pedigree Shorthorn is a blemish at present in the eyes of the breeding world. That it should be so thanks to the Yankee, who objected of old to any but

the 'raw nose,' else what harm could that be which is simply a relic of ancestral inheritance from the celebrated Galloway heifer and Chillingham herd, which were used so freely in Cunningham's alloy, and which is continually reappearing in the oldest and best strains—some great Royal prize-takers—of the pedigree stock, as every reader knows? Names I will not give, as I have no wish to depreciate any gentleman's herd. I will only remark that Belvedere had the defect latent in his composition, and that the Chilton cows abounded with it. The oldest breeders in private converse make no secret of this objectionable nasal tint, cropping up occasionally under most unlikely circumstances. From a scientific knowledge of the dip of strata, Sir R. Murchison, amidst the Ural Mountains, predicted the finding of the Australian gold fields. By an analogous acquaintance with the elements that underlie the famous Thorndale bulls, it was long ago predicted by a celebrated living Shorthorn authority, that an occasional black nose must crop out in that stock. I was not myself at the Havering Park sale, but have certainly been repeatedly told by competent authorities that Baron Oxford had undoubtedly a smutty nose. Mr. Eastwood did well to have an inquest in the matter, and we will devoutly hope that the shadowy dim spot which is allowed to disfigure the luminary may not spread nor reappear in his progeny. But as America started the fuss by objecting to black noses, let it now make the *amende honorable* and confess itself hypercritical in the first instance. The emancipation of the blacks has been of late their praiseworthy mission As regards Mr. Eastwood's herd, be they all tainted in this terrible manner, still they would fetch by auction, I do not hesitate to say, the highest average that has ever been obtained. The gentleman who founded the first Townley herd, and who never meddles with stock of any sort without gilding it, will not suffer from what really is only a vulgar prejudice. I do not mean to say that it would not be better if we could eliminate the dark stain from our herds; but seeing how deeply it impregnates them, I do not hesitate to state that I, for one, should not decline to breed from an animal of excellent points and fine quality, even though he may appear to have carried printers' ink in his scent-bottle. But to settle the matter more immediately and thoroughly—Messrs. Eastwood and Culshaw, are they not in the Shorthorn world of authority to set fashion even equal to that of the Empress Eugenie? 'Let there be golden hair,' and there was golden hair. The Empress had only to ordain and the thing was done. Let our leaders be as resolute, and declare that, at least, the quadroon tint shall not condemn a bovine beauty. And as we are upon the subject, let them issue an edict further that the *white* colour shall be equally costly with the red and roan, for have they not proved in the course of their victories that the white heifer is usually pre-eminent in loveliness of shape, in grace, in wealthiest quality? Again, are not the very richest roans often the offspring of a white cow? Such, at least, has been my own experience. To say that the white are more delicate, is simply not fact, as any one who likes may prove for himself, and as the most experienced breeders and feeders readily allow. To depreciate the cream hue only serves the purpose of a few far-sighted buyers. That Mr. Eastwood is superior to this prejudice is proved by his using that grand white bull, the Hero."

Such, Mr. Editor, is the opinion of a celebrated English Shorthorn authority, and I quote it for the consolation of any of our breeders who may have had a dark nose "crop out" among his thoroughbreds. And I had recently a conversation upon this subject with the manager of one of the largest Shorthorn herds on this contieent, who had lately returned from England. He said that it was not considered of such importance there as it is here, though it was, of course, a blemish, but not any evidence of impurity of blood. EMANCIPATION.

December, 1870.

Wintering Calves.

It is a common belief among herdsmen that it is as much a task to carry a calf through the first winter as it is the second. It has been a fancy of ours to handle calves for three-score years. About the first hard work we tried to do was to yoke up the calves and teach them to go at the word of command. In our boyhood it was the practice to feed them nubbins of corn or a few oats besides their hay, and when we began on our own hook we fed carrots, apples, turnips and potatoes. Forty years' experience has convinced us that there is little trouble in getting through the first winter, if the calf is in fair condition to begin with. We prefer one or all the articles above named to grain.

Calves should have a place by themselves, where they can enjoy their food undisturbed by older animals. A good shed is indispensable; good early cut hay, and free access to good water, are equally important. Straw or leaves for bedding should not be overlooked. Now if you will visit them once or twice a day, always with regularity, with a quart apiece if twice a day, of finely chopped carrots, you will be pretty sure to find them glad to see you, and ready for their rations. We give the carrot preference because experience has shown us that for a calf it has no equal. Regularity is more important with a calf than older animals, though it pays on all. With these provisions, we have scarcely failed in keeping our number as good in the spring as in the fall. We have used a stable, but prefer a good yard and shed with a place where they cannot get on the food with their feet.

Teeth as a Test of Age.

To the Editor.

SIR,—I noticed in your answer to a "subscriber," respecting teeth as a test of age, that while regarding the teeth as amongst the surest marks of the age of any animal, still you admit that high-kept and rapidly-growing sheep may acquire their second teeth much earlier, and according to one authority, by several months or a year.

The usual order in which the temporary incisor teeth are succeeded by the permanent is as follows: When the animal is about twelve months old, the two centre teeth are replaced by two broad ones. The following year, the next two lateral teeth are succeeded by two others, giving the animal, when two years old, four broad teeth side by side; in the third year six, and the fourth eight, when the change is completed.

I carried the "crook and plaid" for many years in the old country, and was in charge of many sheep which were specially fed for the English market; and where those of a certain age were sold in lots, the teeth were the only guide taken to indicate the age, and no instance ever came before me where a year-old animal showed four broad teeth, or a two-year old six; and my experience of sheep in this country is the same, and in fact I never heard of any instance in which sheep, however well-fed or of any breed, which had the teeth usually found in those a year older, till within the past few years, and those were in animals exhibited at agricultural shows, and first at the Provincial exhibition.

In fact, I have noticed when there is a variation from that usually seen, even in the best fed animals, that the permanent teeth in coming are more apt to be quite a time later in making their appearance, but never before, so that when four broad teeth are seen, I am positive that the animal is two years old, and may be several months more, but never less than the two years.

I would not trouble you by writing this, concerning the particular importance I lay on the teeth as the only indication we have of the age of the animal, were it not for the imposition we yearly find at our annual shows, both provincial and local, where animals of a certain age are classed with those of a younger; besides, many farmers wishing to improve their stock are taken in by unscrupulous sellers, even among the *respectable* stock-breeders of Ontario, in substituting two-year olds for yearlings and three-year olds for two year olds, and when challenged by those who have regarded the appearance of the teeth as a mark to denote the age, fall back on the doctrine you wish to inculcate, that high-fed animals *may* cut their second teeth a year before that which occurs in the majority of animals—a doctrine which, in my opinion, must be received with caution.

In order that you may have some idea of the number of such precocious articles which appear at our Provincial Exhibitions, I will give you the following, which came under my own observation, in this section of the country, and I might add to the number. Besides, the fraud was increased by the animals carrying nearly two years' wool on their backs, or at least the past year's and the present summer's, from defective shearing.

In a neighbouring township a farmer bought a ram from a respectable Ontario breeder, for which he paid $80, with four broad teeth, which was entered both at Montreal and Kingston as a yearling, taking first prizes in both cities. On his attention being drawn to the teeth, he wrote to the seller, who fell back on the high-keeping as the cause; but at the same time sending him, I presume as a *solatium*, two splendid yearling ewes.

This occurred a few years ago, but this fall, a gentleman belonging to this township purchared at the Exhibition in Montreal a ram, which took a first prize, and was guaranteed to be but two years old, which has six broad teeth.

In some of our township shows, sheep to which prizes had been awarded at Provincial Exhibitions have been prevented from competing by being but partly sheared the preceding spring. The old wool adheres together more than the new, is of a darker colour, and by being combed stands out, giving the animal the appearance of having a greater quantity of wool than it really has.

M. McGREGOR.

Roxborough, Nov. 23, 1870.

NOTE BY EDITOR.—While we can give no other answer than that already published to the question of the reliability of the teeth as a test of age—namely, that this index is the best, but not absolute and without exception—we are glad that our correspondent should call attention to the frequent frauds attempted on the score of the exceptional possibility. That these deviations, however rare, do occur, is attested by the most eminent authorities. Facts of the kind have come under our own observation, and we know from analogous instances in the human subject, as well as among the lower animals, that precocity and abnormal development of the teeth occasionally present themselves. The subject has frequently given rise to dispute, and at one of the recent shows of the Royal Society good evidence was adduced to prove that certain animals which the judges had disqualified from this teeth test, as having been wrongly entered, were really of the age represented, and younger than the teeth indicated. We believe, however, that these irregular cases arise rather from natural precocity than high keep, and are quite sure that authentic instances of the kind are so rare that anything like a frequent representation of such precocity on the part of exhibitors or flockmasters should be received with the gravest suspicion.

Acorns Poisonous to Cattle.

A disease which the London *Field* believes to be caused by the animals eating acorns, has broken out among cattle in England. In 1868, many cattle died in England of a disease, the immediate cause of which was the consumption of acorns. Young cattle were the principal victims, but the older animals did not escape.

In some of the animals which were examined after death, in the autumn of 1868, the roof of the mouth was found to be extensively excoriated; the papillæ in the first stomach (rumen,) were blanched on their apices, and cracked, as if they had been exposed to the action of some powerful corrosive; the leaves of the third stomach (omasum) were commonly much congested, and in many cases hard masses of partly digested acorns were found between them.

The present outbreak of the "acorn disease" happens under precisely similar conditions to those which obtained in 1868—a long drouth, scanty crops of grass, and an abundant supply of acorns, which have been plentifully scattered over the pastures by prevalent gales. In 1868, the first cases of disease were detected at the end of September; this year the affection appeared a fortnight later, but in each instance as soon as sufficient acorns had been blown to cover the lands on which the cattle were feeding.

A Model Stable Keeper.

An exchange in giving an account of one of the best Livery stables in New York, says the proprietor of the establishment is extremely particular as to the men he employs, and the following are among his rules:—

"First—No man will be employed who drinks intoxicating liquor. His men, like his horses, must drink water—cold water only.

"Second—No man must speak *loud* to any of the horses, or in the stable where they are. Horses of good blood are nervous; and loud, excited conversation is felt by every horse in the stable, who hears it. Excited words addressed to one horse are felt by every other horse who hears them, and keeps them all nervous and uneasy.

"Third—No man may use profane language in the hearing of the horses. They are gentleman's horses, and understand what profane language and the excited tones which accompany it mean."

The last is no doubt an excellent regulation, though the reason assigned is somewhat ambiguous, and rather hard on the "gentlemen."

It is best to handle calves and colts as much as possible, and pet them, lead them with a halter, and caress them in various ways. Young stock managed in this way will always be docile and suffer themselves to be approached and handled, both in the pastures and in the barn.

Veterinary Department.

Tetanus in Horses.

Some time ago, in a former number, we alluded to this alarming and terrible affection, and we have been induced to do so again, as we have had several cases lately in our own practice, and have also been informed of its occurrence in various parts of the country.

Tetanus is a nervous disease, producing a permanent contracted condition of the whole or part of the voluntary muscles. The name usually applied to this disease is "lockjaw," from the circumstance of the muscle which opens and closes the jaw being rigidly contracted. The proper designation of such cases is *Trismus*, signifying that the muscles of the head and neck are principally affected. When the muscles that raise the head and neck are violently affected, producing a crouching of the back, with the head carried stiffly erect, the term *opisthotonos* is applied.

This disease is usually described as of two kinds—*traumatic* and *idiopathic*. Under the former term are included those cases which supervene upon some visible injury, as pricks or punctures to the foot, injuries to any of the joints, or in fact any part of the body. By idiopathic is understood that kind occurring where no visible lesion can be noticed, and possibly resulting from some disordered condition of the digestive organs.

Tetanus occasionally occurs as a result of castration, in instances where the horse has been exposed to cold. It is recorded by a French veterinarian that twenty-four horses were castrated on the same day and by the same method, and afterwards the animals were four times a day bathed in water derived from a very cold spring, and as a consequence, sixteen out of the twenty-four died from tetanus between the tenth and fourteenth day after the operation.

The symptoms of tetanus vary according to the intensity of the attack. One of the earliest symtoms is a peculiar anxious expression of countenance, with a general nervousness and tendency to excitement, causing the horse to tremble slightly, and giving rise to jerking of the tail; and the *membrana nictitans*, or haw of the eye, is ejected quickly over the eyeball, and will remain, partially covering the eyeball, as long as the excitement is kept up. This action of the *membrana nictitans* is produced from the increased contraction of the retractor muscle. (By empirics this prominent symptom of tetanus is often mistaken for a local affection, and the unoffending body is barbarously removed.)

There is difficulty in swallowing, and the head is carried stiffly; the muscles of the neck and head are unnaturally prominent, and hard and tense; the jaws are partially closed, and when in this condition, the tongue is frequently injured in the animal's efforts to swallow. These symptoms increase, and the whole muscular system becomes involved. The patient stands with outstretched limbs and anxious look, and the least excitement produces a paroxysm frightful to behold. The respiratory organs are affected from the impaired action of the muscles of respiration, and a common cause of death is congestion of the lungs resulting from that condition. The pulse is but little affected, except after a paroxysm; the jaws become completely closed; the skin in many instances becomes covered with perspiration; there is frequently great thirst; and the alarming symptoms are greatly increased by the ineffectual attempts at deglutition. The animal becomes gradually exhausted, and death may take place in from four to twelve days.

Treatment of Tetanus.

Tetanus is a very fatal disease, and many are the remedies that have been tried without alleviating the painful and distressing symptoms. We only intend to allude to the general course of treatment which should be adopted, without referring to the use of many powerful drugs, which should only be used when their action can be closely watched by professional men.

The patient should be placed in a roomy box, and kept as quiet as possible, the farther from any noise the better. He should be approached carefully and quietly, as the least noise or irritation has an injurious effect. In traumatic cases, the wound or injured parts should be diligently fomented with warm water, or poultices applied when it can be conveniently done. A full dose of purgative medicine may also be given, as eight or nine drachms of Barbadoes aloes.

The extract of belladonna, in doses of one drachm three times a day, appears to be useful in this disease. The horse must be allowed plenty of sloppy food, and if the jaws become completely closed, the strength may be supported by nutrient enemata. Blisters are occasionally applied along the spine, but we consider that they are attended with bad results, and therefore cannot recommend their use.

Mange in Cattle.

The cause of mange is the presence of a minute insect (or *acarus*,) which has its habitation in the skin, and burrows its way from the surface underneath the cuticle. Mange in the horse and ox, and scab in the sheep, are one and the same affection, although the *acarus* in each differs somewhat in form and size—each animal having its own peculiar insect, which cannot be transferred to the skin of a different species.

The symptoms of mange are a constant rubbing and itchiness of the animal, which, when examined, will be found to have the skin denuded of hair in places, and having a sort of dry scurf. When this is removed by the finger, we find small raw-looking pimples, discharging a yellowish serous fluid. On examining the scab under a microscope, the *acari* may be distinctly seen. In long continued and chronic cases, the skin becomes thickened and thrown into wrinkles and folds. The parts more especially affected are the skin about the neck, breast, and thighs, where it hangs loose and in folds.

In the treatment of mange we have to accomplish two things—destroy the insect and ova, and restore the healthy action of the skin. For the former purpose almost all the various poisonous compounds of the *Pharmacopœa* have been recommended and employed, and often to the destruction of the animal. Arsenical compounds, although destructive to the *acari*, are too often destructive to the animal too, and should never be used. Mercurial compounds are equally effective, but should be used with extreme caution, as ptyalism (or salivation) will often ensue; when these compounds are used, especial care should be taken to keep the animal from cold and wet. The following form will be found efficacious:

Soft soap, one pound; Mercurial ointment, four ounces. Well incorporate, rub into the affected places, and let it remain for a day or two, when it should be removed by means of warm water and a brush. Oils of all descriptions, especially animal oils, are destructive to insect life, and having the recommendation of being safe, they may be used in all cases when the disease has not got too firm a hold on the system. Sulphur is also a very valuable medicine in the treatment of skin diseases, and like the former has the recommendation of safety. It may be used in the form of an ointment, but as greasy applications are objectionable, probably the best form of employing sulphur is that of the sulphuret of potassium, or liver of sulphur, dissolved in water. Take liver of sulphur, one ounce; water, eight ounces, to form a lotion to be applied twice a day.

In old-standing and chronic cases, the skin will require more *stimulating* treatment than any of the forms recommended above, and for this purpose the following liniment may be applied: Oil of tar; oil of turpentine; linseed oil—equal parts. Rub well into the skin with a brush every other day. It must be borne in mind, in making choice of a remedy, that no one agent can be deemed a *specific*, and that, to insure success, a change is often requisite, as after a certain number of applications even the most potent remedy will appear to lose its effect. In all cases, however, constant cleanliness is requisite, and the skin should be well washed with soft soap and water after each dressing. A mild laxative may now and then be given, and small doses of flowers of sulphur as an alterative.—*Prairie Farmer.*

Tumour after Abscess.

George McCallum, Tiverton, writes:—"I wish to know how to remove a lump on a valuable colt. The swelling is above the knee joint on the outside of the fore leg. Two months ago the colt was troubled with the flies, and swelled up about the part now affected. The swelling was considerable, but on applying remedies, was reduced. A fluid discharge continued from the part for some weeks, but at length ceased. The opening closed up, leaving a lump as already stated." Enlargements on horses' legs, situated as referred to, are frequently very difficult to remove. When they are of a callous or hardened nature, it is necessary to apply repeated blisters. In the above case, we recommend that the hair be removed from the skin over the enlargement, and an application of biniodido of mercury be used in the proportion or one drachm of the biniodido to an ounce of lard. Apply about two drachms of this ointment every sixth day, rubbing it well in.

Loss of Power in the Hind-quarters.

Paralysis either partial or complete may be produced from chronic disease of the spinal cord, or from direct injury to it, as in cases of fracture of the vertebral column. It also frequently occurs in animals in a plethoric condition, and suddenly put to rapid exercise, which is a frequent cause amongst Canadian horses. In this complaint the parts primarily affected are the coverings of the cord in the region of the loins, the kidneys, and the muscles in relation with these organs, and also the muscles clothing the loins. They become hard and tense, and the parts mentioned are in a congestive state, which, if not speedily relieved, soon terminates in acute inflammatory action.

The predisposing cause is a plethoric state of the system, induced by high feeding, without regular or sufficient exercise. In the winter season farmers' horses frequently stand in their stables for days, are largely fed, and as a consequence, the vascular organs become overloaded, and more susceptible of disease when exposed to any exciting cause, as rapid exercise and exposure.

The symptoms of this alarming affection are very quickly developed. The horse will commence his journey in apparently good health and spirits. After going perhaps for two or three miles, he begins to falter in his pace, and may exhibit lameness in one or other hind leg. He will break into a profuse sweat, which will roll off his body in streams. The stiffness of his loins increases, the breathing is greatly disturbed, causing him to heave at the flanks; the nostrils are distended and the mucous membranes reddened; the pulse is weak, and very indistinctly felt at the jaw; the ears are cold, and when the poor sufferer is forced to move, it occasions him the most excruciating pain,

which he evinces by his moans and woful looks towards the affected region. The muscles of the quarters are swollen, hard, and tense, and in severe cases these symptoms increase until the horse falls and is unable to rise.

When the congestive stage passes over and inflammation is established in the parts, the pain increases, and the pulse, instead of being weak, is full and bounding. The bowels are usually costive, and the urine is very dark; the mouth becomes hot and sticky; the redness of the eyes and lining membranes of the nostrils increase. The animal knocks his head violently on the ground and frequently makes inoffectual attempts to rise. He will raise his fore parts, but the hind are completely powerless.

Shoeing.

If the shoe does not sit perfectly level all around, and if it extends so far outside the hoof that the nails are prevented from entering the crust in the exact spot, and in the very direction, which they should, there will be a constant straining on the nails, which is injurious to the foot, and will be liable to chip pieces off the hoof. The shoe ought to be made wide across the foot at the point where the two front nails are situated. The greatest mistake frequently lies here. In place of turning the shoe, at the toe, very carefully on the horn of the anvil, the smith generally sets it up on its side and then strikes it with the hammer. The consequence is it yields at the centre of the arch, and instead of being nicely and regularly rounded in front, whilst the breadth from side to side is preserved, the nail holes on each side are brought nearer to the centre of the shoe than they ought to be. As a necessary result, the shoe at the front nail holes is too narrow for the hoof, and when it is nailed on, the crust presses on injuriously the internal sensible parts of the foot. It is difficult to convince the smiths of the possibility of laming a horse, by having the shoe too narrow in front. They generally think that the whole difficulty lies about the heel.

In putting on the shoe the nails should be driven with a gentle hand, and they ought not by any means to be clenched very tight. Hard driving and tight clenching will bend the hoof at the place where the clenches are turned inwards and downwards towards the shoe in such a manner as to injure the tender parts contained within the cavity of the foot. Besides, it is not necessary for a man to forget that he is working with the foot of a living animal. The shoe will remain on a sufficient length of time with gentle driving and clenching, provided it is properly fitted to the foot. If it have a thoroughly even bearing, there will be little stress on the nails. The nails are often made so coarse that they split the hoof, and thus keep it constantly broken. A fine nail will answer all the purposes required if it be made of the right sort of material.

We know of no worse fashion in connection with the application of the shoe, than the one which the smith has, of hammering the shoe on the one side or the other after three or four nails have been driven, for the purpose of putting it straight on the foot. This is a speedy method of making up for his total want of accuracy in placing it at first, but it should never be suffered to be practised. It strains all the nails which have already been driven, and is thus calculated to do serious damage to the foot.

Shoeing has been regarded by some as a necessary evil; still we are certain it is an evil in the horse or man only when it is improperly performed. We are confident that in both cases it would be advantageous, rather than the reverse, if the artizan could always be made acquainted with the theory of his profession, and had hands, or rather a head, for its due performing.—*Prairie Farmer.*

Cramp.

To the Editor.

SIR,—I have a colt about eighteen months old, who was taken about a week ago with cramp in his right hind leg. It was so severe that he could not move it forward or backward enough to walk for some time. I rubbed his leg well, and he recovered so that he could step as well as usual; but when he stopped walking, on starting again his leg would cramp stiff and straighten out for a moment, and then it seemed relieved, and he could walk again. After about a quarter of an hour he could walk, but was still somewhat stiff. The cramp left for that day and the next, but the third day the other hind leg was attacked in the same way, and sometimes he would step as if he had the stringhalt for one or two steps. He has been out to pasture since spring, day and night, until within about ten days, since which he has been in the stables at night and out through the day.

Can this cramp be cured, and what is the best course to pursue? R. H. S.

Fonthill P.O.

ANS.—Cramp, or spasm of the muscles of the limbs in the horse, is not often met with, and may possibly be produced from a derangement of the digestive organs. In your case, we recommend the colt to be kept in a comfortable loose box, and given a couple of quarts of boiled oats three times a day, and the limb, whenever attacked, should be well rubbed with about one ounce of the tincture of camphor. The peculiar action referred to is occasionally produced from a partial dislocation of the patella, through a weakness of the ligaments.

The Horse's Foot.

The majority of people are fond of a very large foot, but we are certain that it is a great mistake. Leaving the diseases to which it is exposed out of the question, we look upon it as an indication that all the bones of the animal are soft and porous. A moderate sized, neatly proportioned foot is just as good a sign in the horse as in the man. If we were choosing a man for walking, running, leaping or wrestling, we would never think of selecting a fellow with clock-clicking platters of feet. He would no sooner make his appearance than he would be rejected as totally unfit for the work. Why, then, should we prefer a similar development in the horse? Does he not require a wear-and-tear sort of foot as much as the man? He surely does; and one, too, that he can lift and lay in a lighter manner than if it were a fifty-six pound weight he had attached to his leg. The horse is not intended for passing over a moving sand or a quagmire, and therefore he does not require an enormous foot. In this instance, as in many others, the medium size is far the best. In fact, it is the only safe one. A foot which is either very large or very small, is liable to a variety of diseases, which will be sure to impair its usefulness. The one extreme is nearly as bad as the other. The bones of the foot should bear a reasonable proportion in size to the bones of the leg: and the hoof should be just so large and so strong as to afford perfect accommodation and protection to all the bones, ligaments, vessels and nerves which are contained within its walls. Any deviation from these proportions must be looked upon as a radical defect.—*Prairie Farmer.*

ONTARIO VETERINARY COLLEGE.—The fall term of this valuable institution has just been brought to a close. Four of the senior students passed a most creditable final examination and obtained their diplomas. The test of proficiency was very thorough, and the successful candidates won the highest compliments from the examiners for the satisfactory manner in which they acquitted themselves. The names of the passed students are A. Harthill, jun., of Toronto; —— Mayhew, and Charles Elliott, of Sandhill; and John Boyce, Mount Pleasant. Mr. John Elliott, of Sandhill, passed his primary examination on the same occasion. The examinations were conducted by Drs. Thorburn and Rowell, of Toronto; Messrs. E. T. Haggyard, V.S., Campbell's Cross; —— Wilson, V.S., London; and —— Cowan, V.S., Galt.

NASAL GLEET IN SHEEP.—In reply to a "Carder subscriber," we would say that the discharge from the nose is probably due to chronic inflammation of the cavities of the head communicating with the nostrils and nasal chamber, resulting from catarrh or cold in the head. We advise that the sheep be well fed, and the nostrils cleansed once a day with tepid water, taking care to thoroughly dry the parts; and give one scruple of the iodide of potassium in two ounces of water, morning and night, to be continued for eight days. Occasionally, parasites infest the nasal chambers, producing an irritation, followed by a discharge of matter from the nostrils.

The Dairy.

Dairying in California.

Having travelled over the dairy districts of Great Britain, France and Switzerland; with an intimate acquaintance of the dairy lands of the Eastern and Middle States, of the Canadas and several of the Western States, we found, upon the Pacific slope, conditions different from anything seen before. The climate, the soil, and the grasses are different, and, indeed, as compared with other dairy sections, so unlike, that we found it often difficult to draw satisfactory conclusions.

Up to the present time, stock has been kept upon extensive ranges. The soil is wonderfully productive in cultivated crops, but whether any of our artificial grasses can be introduced to take the place of those natural to the soil; whether, indeed, the bunch grass, under close cropping and long continued dairying, will prove enduring, are questions not satisfactorily solved.

While the climate of the coast range is low and uniform in temperature, some of the valleys further in the interior are intensely hot in summer. In the Sacramento Valley the heat is sweltering, and of course, dairying in such portions of the State could not profitably be carried on. The absence of meadows and the sowing of oats or barley for hay is a feature that at first would not strike an Eastern dairyman favourably. Yet when it is taken into account that stock run out all winter in the fields, and comparatively little fodder is required, meadows, it would seem, are of little account and can well be dispensed with. Looking over the country, as we did, at its worst season, when everything is dry and parched, one would not be likely to be misled with impressions too favourable. And yet, from what we saw and heard, we were favourably impressed with Californian dairy lands. We found stock universally in fine, thrifty condition.

It was plainly evident that much less labour was required in the care and feeding of stock here than at the East; that under ordinary management there must be a much less percentage of loss in stock from disease and accident, on account of the more favourable climate; that fancy goods could be easily made, and that with proper skill in manufacture, poor stuff ought to be the exception rather than the rule; that with the same prices for dairy products as at the East, large profits could be realized, because dairies could be managed at less expense, to say nothing of the difference in the price of lands. These, with other advantages, could not be ignored. And in saying this, we do not wish it to be inferred that we advise Eastern people with good farms, eligibly located, and who are doing well, to pull up stakes and go to California, for we believe something in the old adage, to "let well enough alone." Still, to young men seeking homes at the West, who are active and energetic, and have skill in dairy management, California, in our opinion, offers inducements which cannot be readily found elsewhere.—*X. A. Willard, in Rural New Yorker.*

The American Dairymen's Association.

The Sixth Annual Convention of the American Dairymen's Association was to be held in Utica, N. Y., on Tuesday, Wednesday and Thursday, Jan. 10th, 11th & 12th, 1871.

The full programme for this meeting was not settled on, but the following would, we were informed, constitute the main features of the Convention:

Addresses to be delivered by

Donald G. Mitchell, Editor of *Hearth and Home*, on the question: "How far and in what way the practical farmer or dairyman can best avail himself of the teachings of Science."

Professor George C. Caldwell, of Cornell University, on: "The manufacture of cheese in Germany, France, Switzerland, &c."

Joseph Harris, of the *American Agriculturist*, on: "Fattening cows on Dairy Farms."

The following topics would also come before the Convention,

Is there a gradual decline in the amount of dairy products in all our oldest dairy regions? If so, what is the cause and what the remedy? The subject to be introduced by X. A. Willard, A. M.

Is there any way by which patrons of butter and cheese factories can receive credit for the milk delivered according to its actual value, and not according to its weight or measure?

Should not every dairyman practice soiling his cows in connection with pasturage, and what crop or crops are best for the purpose?

What shall be done with the cream which rises upon the milk during the night, in cases where the Agitator is not used?

Grinding Curds—is it advantageous or otherwise?

Management of a good Butter Dairy.

Would the consumption of cheese be promoted in any considerable degree by the more general manufacture of small cheeses?

Condensed milk manufacture.

What is the best method for maintaining an even temperature in cheese-curing rooms?

Proper construction of cheese factories as bearing upon the quality of the product, as also with reference to convenience and durability.

Causes of tainted milk, and the remedies.

What have been the lessons of the past year?

Winter Milk.

Thomas Whitaker, of Needham, Mass., gives his method of treating stock in winter, and its results as follows: In winter I go to the barn at half-past five o'clock in the morning, rather sooner, perhaps, than a good many men would like to go. I give each cow a small handful of hay, and then go to grooming them just the same as I should a horse—first, the curry comb, then the corn broom brush, and then the hair brush—keeping them supplied with hay, a small quantity at a time, for about an hour. Then the boy milks. At night we fill a pork barrel with cut hay with which we mix half a peck of cotton seed meal, and half a peck of shorts. Upon this mixture we pour hot water, and cover with an air-tight lid. In the morning we pour on more hot water, and after milking this is given to the cows; at eight o'clock they are turned out to water; at noon, when the boys come from school, they are fed with hay, and at four o'clock a little more hay; they are then turned out to water. After which they are fed each a pailful of mangolds, rutabagas and carrots cut fine; then cleaned and milked, they each have about two quarts of cotton seed meal, corn meal and shorts—equal quantities of each; upon this boiling water is poured, to which cold water is added enough to fill a pail, with a little salt; after this a little more hay, and they are left for the night.

And now for the result. We sell one hundred and thirty-six quarts of milk a month; in November we sold fifty-seven pounds of butter, in December we shall sell about the same quantity, besides what we have for family use. This is from two cows and a heifer that was two years old last April, and calved the first of May, the other last September. We made butter all last winter, and shall make it all this winter. It pays better to make butter in winter than summer. Churning has never exceeded half an hour, and generally inside of that time. The milk is not scalded, but the cream before churning is brought to a temperature of about sixty degrees.

Selecting Milch Cows.

Hon. Charles L. Flint, Secretary of the Massachusetts Agricultural Society, delivered a lecture on the Principles of Breeding, at the Agricultural Convention at the Massachusetts Agricultural College, from which address we take the following extract:

I will not stop to discuss the indications of milking qualities, but simply to mention some of the most prominent. First, the milk-mirror, or escutcheon. Guenon, a Frenchman, whose life was passed among cows and dairy cattle, and who was a careful observer, discovered certain marks on the udder and its surroundings, which he called the escutcheon, and deemed an infallible sign of milking qualities. It consists in certain perceptible spots, rising up from the udder in different directions, forms and sizes, on which the hair grows upward, while the hair on the

other parts of the body grows downward. This turning up of the hair is an indication of the structure and tissues beneath, and if the mirror is strongly marked, by placing the hand upon it the veins and net-work may be felt.

The milk-mirror is one of the best signs of a good milker, but sometimes this mirror is possessed by cows of inferior quality. In such cases, the other signs of the quality will be wanting. We should find whether the cow possesses such marks as a large udder in proportion to the size of the animal, and soft, thin skin, with loose folds extending well back, of great extension when filled, but shrinking to a small compass when empty; large well-developed milk veins, especially the large ones under the belly, which should extend well forward to the navel, and apparently lose themselves in a cavity in the flesh, into which the end of the finger can be inserted. If the cow possesses these in connection with the mirror, she may be taken as a good milker. The escutcheon is found in young calves, and when found well developed, the calf should be preserved for the dairy.

There are a great number of external signs, which judges consider indications of milk, most of which are found to fail in individual cases; but a good cow should always have a strong constitution, as indicated by large lungs, which are in a deep, broad and prominent chest, broad and well-spread ribs, a respiration somewhat slow and regular, a good appetite, and if in milk, a strong inclination to drink, which a large secretion of milk almost invariably stimulates. In such cows the digestive organs are active and energetic, and they make an abundance of good blood, which, in turn, stimulates the activity of the nervous system, and furnishes the milky glands with the means of abundant secretion.

A bright, sparkling eye, but of peculiar placidness of expression, with no indication of wildness, but a mild, feminine look; small tapering, yellowish horns; small, thin neck, tapering towards the head; fore-quarters small, compared with the hind-quarters, and a thin, yellow, flexible skin throughout, are pretty sure indications of milk.

Butter Making in Kentucky.

In a late number of the *Rural New Yorker* we find the following statement of the views and practices of Mr. W. W. Ingram, who has been managing a butter factory at Winchester, Ky., for two years past: Presuming that the feed of the cows is of the best character, and that the milk is all right and has been kept at the proper temperature for getting the cream, the first thing to be attended to is

STRAINING THE CREAM—for the churn. The cream should be of uniform consistency when it goes into the churn, as it is difficult to make a fancy product when thin, thick and lumpy particles of cream are placed altogether in the churn. The proper way is to strain the cream into the churn by passing it through a strainer, so as to reduce it to an even or uniform consistency. For this purpose a pan, the bottom perforated with holes, is employed, and by thoroughly mixing the cream and passing it through this strainer, the cream is made all alike. Then, unless the cream is quite thin, water is added, in proportion of one-fourth the bulk of cream. The temperature is raised or lowered until the thermometer is from 60° to 62°. Then, when the churns are ready to be started, two quarts of warm water, having a temperature of 90° to 100°—but not above 100°—are added for every 16 gallons of cream. Now we are ready for starting the churns, and the dashers should not be made to go too fast nor too slow. Mr. Ingram thinks there is no churn yet invented (that he has seen) that will do so good work as the old-fashioned barrel dash-churn. He prefers this style of churn, and in churning, the stroke of dash should be regulated so as to make fifty strokes per minute. This is another point of importance in making a fancy grade of butter. A great many butter makers spoil their butter in churning, and have no definite idea how the churning should be done. From repeated and long continued experiments, it has been demonstrated that the stroke of dash should not be oftener than fifty per minute, in order to produce the best results. It is desirable that all the cream make butter at the same time. If it come unevenly, or particles of cream get mixed up with the butter when it is ready to work, the butter will be injured and will not keep. After the butter begins to come, add cold water freely, rinsing down the sides of the churn. Then when the churning is finished take out the butter from the churn and merely rinse off the buttermilk with cold water, using the ladle, and not allowing the hands to come in contact with the butter, even though they be "clean as clean can be." Of course it is understood that no one with dirty hands should have anything to do in the manufacture of butter. We do not want a dirty hand or a dirty foot within ten rods of our "golden bale" of butter. Now the rinsing having been attended to, the butter may be salted at the rate of an ounce of salt to the pound of butter, and be particular that your salt is pure. The factory filled salt, when obtained of the Syracuse Salt Company, or their accredited agents, is as good as the best. Work the salt in thoroughly and evenly, and do the working of your butter at this time. Then set aside in a cool place, and let it stand twenty-four hours, when it may be taken up, merely working out "the loose brine," and it is ready to pack.

At the Winchester factory the milk is set in pails surrounded by cold spring water so that an uniform temperature of from 50° to 60° is maintained. It stands in the pool of water for twenty-four hours, when the cream is removed. The cream is deposited in pails, which go to the pools, standing another twenty-four hours, or until it acquires a pleasant acid taste. It is then ready to be churned.

The Strippings

The last drawn milk, every dairyman knows, is the richest. It is important, therefore, to secure this by abstracting all the milk.

Besides losing some of the best and richest milk, there is another loss in not milking clean, as it has a tendency to dry up the cow, or lessen the secretion of milk from day to day. It is very difficult to impress milkers with the importance of drawing the strippings from the udder. Many milkers are in the habit of finishing their work just as soon as the free flow of milk ceases. Such milkers, it is needless to say, entail a heavy loss on the dairyman, in the course of the year, and if they milk many cows, they waste more than their wages. At this season of the year particular attention should be given to the strippings, especially in those cows which are not immediately to be dried off. The strippings make a very nice quality of butter, and some butter-makers think it pays well to keep them separate from the first drawn milk, setting in pans separately for choice butter. It is a little more trouble to the milker, perhaps, to separate the strippings, as it necessitates having a "stripping pail," but there is no doubt that it educates milkers to *milk clean*, if of no other advantage.

In conclusion, we say, be careful and secure the strippings; and as the subject seems naturally connected with butter-making, perhaps the following method of preserving butter, recommended by Mr. E. P. Wright, of Green County, N.Y., may be useful to butter makers:—

"Procure good white oak firkins that are perfectly brine-tight; take out the head (first making a small hole, say a quarter of an inch in size), then fill it with cold water; let it stand twenty-four hours before you are ready to use it; then rub, while wet, thoroughly with fine salt; fill your firkin as soon as possible. Your firkin should be of such a size that one can readily be filled in a week or ten days with sweet butter to within half an inch of the head; then place over it a clean cloth, and fill space with coarse salt; put in the head; then fill with strong brine, previously made of coarse salt, and stop it up."

Mr. Wright says that butter packed in this way, and kept in a cool place, will be as sweet in one year as when first made. —*X. A. Willard, in Western Rural.*

WASHING MILK CANS BY STEAM.—Homer A. Kidd, of Walden, Orange county, N. Y., writes to the Utica *Herald* that in order to get good, pure, sweet milk at his factory, he washes with steam all the farmers' cans, both night and morning. Forty quart cans are used, the same as are used on railroads to send milk to the city. He thinks this extra work pays fourfold, for he finds that he cannot trust the farmers to keep their cans sweet and clean. He has learned the importance of having good milk in making a prime article of cheese. With this washing of the cans, and the farmers having tin pails to milk the cows in, he gets the milk in much better condition.—*Prairie Farmer.*

MAN'S inhumanity to cows is often illustrated by abuse of the animal for restlessness caused by the pain inflicted in milking, by sharp finger nails. Mr. J. F. Furnam, Segel, Iowa, writes to the New York Farmers' Club, that one of his cows had always been very sensitive; but that after he commenced milking by clasping his fingers clean around her teats, so that his nails could not hurt her, she became gentle. Some cows will bear the pressure of the finger nails, and not resent it; while others will flare up on the first grasp, and knock the pail across the yard; then come pounding and kicking. Let us be careful with our cows, and not act without thinking.—*Prairie Farmer.*

Entomology.

The Codling Moth.

After a series of experiments, instituted the past summer, we have proved that, after all, the hay-band around the trunk of the tree is a more effectual trap for the Apple-worm than the rags placed in the fork of the tree. There is no superiority in the rags over the hay-band, unless the former are made to encircle the tree as thoroughly as the latter. Where rags are placed simply in the forks, many of the worms pass down the tree from the outside of the branches. If the rag is tied around the trunk, it will impede almost every worm that crawls down the tree from the fruit which hangs on, or that crawls up the trunk from the fruit which falls; and it then has a decided advantage over the hay-band, because it can either be passed through a roller or scalded, and used again.

It has been very generally accepted in this country that the Codling Moth is double-brooded, and in all our writings on the subject we have stated it to be so, though no one, so far as we are aware, ever proved such to be the case beyond a doubt. Mr. P. C. Zeller, of Stettin, Prussia, informed us last winter that it is only single-brooded in that part of the world, and Harris gives it as his opinion that it is mostly so. Now, such may not improbably be the case in northern Prussia, and the more northern of the United States, though we are inclined to believe otherwise. At all events, this insect is invariably double-brooded in the latitude of St. Louis, and its natural history may be briefly told as follows:—The first moths appear, and begin to lay their eggs, soon after the young apples begin to form. The great bulk of the worms which hatch from these eggs leave the fruit from the middle of May to the middle of June. These spin up, and in from two to three weeks produce moths, which pair and in their turn commence, in a few days, to lay eggs again. The worms (second brood) from these eggs leave the fruit, some of them as early as the first of September, others as late as Christmas. In either case they spin their cocoons as soon as they have left the apples, but do not assume the pupa state till towards spring, the moths from the late matured worms appearing almost as early as those from the earlier matured ones. The two broods interlock, so that in July worms of both may be found in the fruit of one and the same tree. We have repeatedly taken worms of the first brood, bred the moths from them, and obtained from these moths the second brood of worms, and we have done this both on enclosed fruit hanging on the tree in the open air, and on plucked fruit in-doors. In the latter experiments the moths would often cover an apple with eggs, so that when the worms hatched they would enter from all sides, and soon so thoroughly perforate and devour the fruit as to die of starvation. This is a clear case of misdirected instinct in the parent, caused doubtless by confinement.

From the foregoing facts it becomes obvious that the rags or the hay-band should be kept around the tree, say from the first of May till the fruit is all off; and to be thoroughly effectual, the insects collected in or under them should be destroyed regularly every fortnight during that time.

Destructive Grain Insects.

After a man has fought insects all summer and succeeded in saving his crops, it seems to be no more than a just reward for his labours that he should rest in peace during winter. Usually our pestiferous insects remain quiet during cool weather. There are, however, a few rascals who occasionally creep in among stored grain, and do considerable damage. Farmers in the extreme Northern States suffer less from grain-eating insects than those farther South; and this should console them for the long winters and severe cold weather. Every locality has its advantages and disadvantages, and we doubt if there is really much difference; blessings are showered upon us wherever we go, although it is not human nature to see things in such a favourable light.

We have at the North injurious insects in abundance; but at the South they are far more plentiful, and their season of rest is of very short duration. Insects injurious to stored grain are seldom very destructive in cold climates, unless brought from a warm locality and then placed in a favourable position for continuing their depredations during winter. The common Pea Weevil (*Bruchus pisi*) is probably the most destructive and wide spread of any of this class of insects; but to this there is a northern limit, which, luckily, is south of the highest latitude where peas will grow; hence, we do receive clean, unaffected seed from Canada and the northern countries of Europe.

Until within a few years past, beans have been almost entirely exempt from the attacks of insects, particularly in the Middle and Northern States; but that time is past, and our farmers will have to look sharply and fight vigorously, for an enemy has appeared that will make sad work among beans in favourable localities. This Bean Weevil is not a new insect, for it was described many years ago by that eminent American Entomologist, Thomas Say, and it is known as *Bruchus obsoletus*. It is a very small beetle, not as large as the pea weevil, but similar in form. They do not appear to have much choice of kinds, as they attack the Lima, Black Wax, and all of the choice sorts, a half dozen weevils being often found in a single specimen. We are informed that in Philadelphia, and cities farther South, it is almost impossible to find beans raised in the locality that are not affected by this pest. If the beans are stored in a warm place, the weevils come out during autumn and winter; and we have seen bushels of various sorts of beans within the last few weeks that were entirely destroyed by this pest.

In white varieties, like the Lima, the weevil can be seen through the outer skin before they make their appearance, and affected specimens may be rejected; but with the dark-skinned sorts this cannot be done, and a close and careful examination is necessary.

We would advise every one who purchases seed beans to examine them closely, and if a weevil is found, reject the whole lot, or place them in a barrel or tight box, and keep them there until the insects begin to come out, and then fumigate with sulphur, or pour a little kerosene among the beans and close up the vessel tightly until all the bugs are dead. Many thousands of dollars' worth of beans have already been destroyed this season by the bean weevil; and it is the duty of every man to aid in preventing their increase and dissemination.

THE CORN OR ANGOUMOIS MOTH.

This very destructive insect is known in Europe as the "Angoumois Moth," receiving its common name from the French province of Angoumois. It is known to Entomologists as *Butalis cerealella*, of Olivier, and was described in a work published in Paris in 1762. This pest has now become very abundant in many localities in this country; at least we judge that to be the case, from specimens of grain infected with it received from various sections. It appears to prefer Indian corn, although it will attack wheat, rye, barley, and in fact all of our common cereals. Sweet corn appears to be its favourite food, and our seedsmen are already suffering severe losses from its ravages, although we suppose few of them would be willing to admit that such a a great pest could be found in their establishments.

We know, however, that this grain moth is wonderfully abundant, and our object in mentioning the fact is to put the farmer on his guard against such a formidable pest. Harris says of this moth:—"The Angoumois grain insect, in its perfected state, is a little moth of pale, cinnamon-brown colour above, having the lustre of satin, with narrow, broadly fringed hind wings of an ashen or leaden colour; two thread-like antennæ, consisting of numerous beaded joints. It lays from sixty to ninety eggs, placing them on a single grain; from these are hatched, in from four to six days, little worm-like caterpillars not thicker than a hair. These immediately disperse, and each one selects for itself a single grain and burrows therein."

Knowing the habits of this insect, we can readily destroy it by fumigation when first discovered, and thereby prevent its increase.

ANOTHER GRAIN PEST.

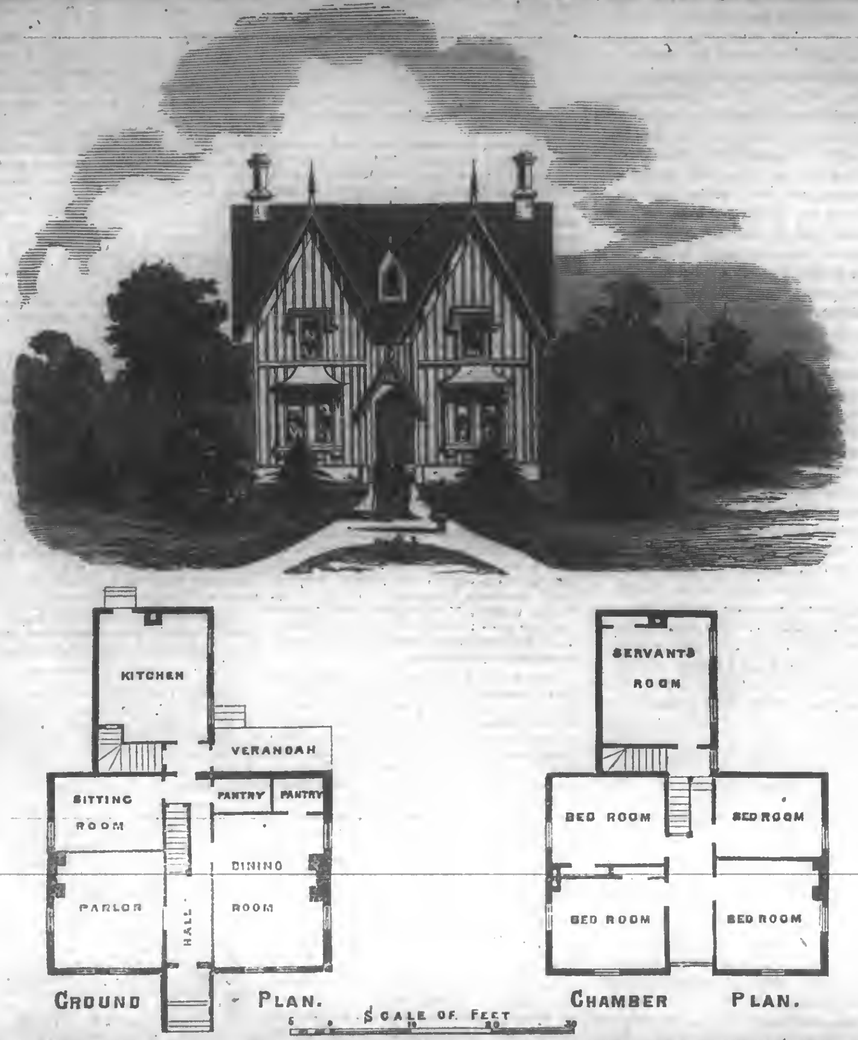
The true grain weevil of Europe (*Silophilus granarius*) has become fully acclimated in this country, and destroys hundreds of bushels of grain annually. It is a very small, slender-snouted beetle, not more than an eighth of an inch long and about one-twentieth broad. To the naked eye it looks black; but when placed under a glass its colour appears to be dark brown, with a slightly punctured thorax. This little pest, both in its larva and perfect state, destroys grain of various kinds; and a few days since we found millions of these beetles feeding upon a quantity of corn stored in this city.

Harris states that the female deposits her eggs upon the grain after it is housed, and the young grubs hatched therefrom immediately burrow in the grain, the substance of which they devour. These grubs undergo their transformation in the grain, and do not leave it until the beetle has come to maturity. This is one of the greatest pests that has appeared in this country, and it will be one of the most difficult to get rid of, for it keeps buried in the grain during nearly its whole period of existence. It is said that kiln-drying the grain will destroy the weevil, but this would also be very likely to destroy, or very much injure, the vitality; and for grain kept for seed, the practice could not be recommended.—*R. New Yorker.*

Architecture.

Design of a Small Farm Dwelling.

Once more we present our readers with the plan of a small picturesque frame house, simple in design and capable of being carried out at a comparatively small cost. The ground



of the house, communicating with a lobby in the rear. Connecting with the kitchen, on the right side of the main hall, is a dining or family room, fourteen feet wide by seventeen feet long, having a pantry opening ont of it at the end. On the left side of the hall is a parlour and sitting-room, which, if necessary, might be used for a bed-room. The parlour is fourteen feet square, and the sitting-room is fourteen feet long by ten feet wide. The store pantry is at the end of the hall, and near the kitchen. The ground floor ceiling will be ten feet high, and the first floor nine feet six inches high. The first floor is divided into four good large bedrooms, and two wardrobes.

There are fireplaces in the dining room, parlour, and best bed-room upstairs.

On account of the steep pitch of the roof, there will be room for four good bed-rooms, which could be fitted up at some future time if not required at first. The building is to be framed in the usual way, but instead of supporting the sills on cedar posts, either brick or stone piers are recommended, or what is better still, a good stone or brick wall foundation. A frame set on a stone or brick foundation will be sound and good when one set on posts would be cracked and twisted, and nearly used up. There will be a cellar under the kitchen, the walls of which are to be of stone. A concrete floor,

when good drainage can be obtained, is preferable to planking.

The exterior of the frame is to be sheeted with 1¼ inch tongued and grooved upright boards, and the joints covered with a 1½ inch champhered batten. In order to make the house warm, the inside of the frame might be sheeted with common rough tongued boards, and then strapped and lathed and plastered. The plastering in all cases should be carried down to the floors. The roof is to be shingled with good shingles laid in hair mortar.

The exterior of the building should be painted some nice fawn or light buff colour, with anti-corrosive paint, as it will last four times as long as the common lead paints. It is now used in all the Government buildings in Great Britain. It can be had in any tint except pure white.

No description of the exterior is needed, as the drawings speak for themselves.

The interior finish of this house can be either plain or ornamental, at the option of the builder. The woodwork, if neatly executed with clear dry lumber, might be simply varnished with good effect. There are many beautifully grained pieces of pine, which, if well selected, and put in the panels of the doors, would look as well as many of the expensive hardwoods. The mouldings might be variegated with butternuts or walnuts with very little additional cost. But these matters, though small in themselves, give elegance and style to a house, and proclaim the man of taste. We advise any of our readers, who contemplate building, to try this, and we are sure their architects will heartily aid them in carrying ont their ideas in an artistic manner.

This house, if completed in the ordinary style of finish, could be built for about $1,200.

How to Avoid Wet Cellars.

An excess of water, or too much dampness, in some instances, arises from surface water, and in others, from spring veins that crop out in the cellar. In many instances, when the excavation is being made for a cellar, in a heavy, springy ground, water-veins are cut off two or three feet below the surface of the ground. When such is the case, the water in those veins will be discharged behind the cellar wall, and will settle down and pass along on the surface of the cellar bottom. Sometimes, however, the veins of watar are not reached till the excavation is about completed. Then, when the water veins, which pass through the earth like the blood veins through the body of a living animal, are filled with water, the bottom of the cellar will often be covered with water, even when a good underdrain has been provided to convey it away as soon as it has accumulated in sufficient quantities to flow out through the underdrain.

Now for the remedy. The correct way to avoid a wet cellar, is to lay a tile drain entirely around the outside of the excavation, nearly a foot lower than the bottom of the cellar, before the foundation walls are laid. But after an edifice has already been erected, and water appears on the cellar bottom, the most satisfactory way to render the bottom dry is to sink the channel nearly a foot deep entirely around the cellar close to the wall. and lay a course of drain-tiles in the bottom, which will cut off all water-veins, and thus render the cellar quite satisfactorily dry, by conducting the water into the tiles before it can work along toward the middle of the cellar.—*Scientific American*

Repairing Buildings.

An advantage is always gained by the farmer who is fully prepared for cold weather when it comes, and economy is not only exercised in properly securing fall crops, but in putting his buildings in such condition that they shall give full protection against the strong winds and driving storms of winter. Hardly any building is so good that no attention in a mechanical line is needed. An absent shingle upon the roof should be replaced as soon as its absence is discovered, for if not, leakage and decay are sure to follow. Where a shingle has been removed by wind, it may be known that those immediately above and below are not securely nailed, and soon a breach of considerable magnitude will be made—a nail in time will save nine.

Another important thing to notice in connection with the roof is the condition of the ridge-boards. In travelling through the country, hundreds of outbuildings and many residences may be seen with these entirely or in part gone. The opening not being large, but little snow or rain falls through, and does not attract particular attention, but yet the moisture so completely penetrates here that the ridge-pole, ends of the rafters, and roof-boards decay. One hour's work a year will keep everything as it should be.

When the weather-boarding of buildings gets to clattering, it should be nailed up at once. The best way is to take a hammer and pocket-full of nails and give each building a looking over, twice a year, say fall and spring. When a board is allowed to drop off, it soon warps up, or splits in such a way as to be unfit to replace, and new timber has to be used to make the repair.

If stable floors, feeding racks, and mangers need repairing or making new, the time to do the work is before wanted for use. If neglected until the season for stabling stock, the cold weather and press of business will very likely prevent further outlay than patching up so as to do for the present, resulting in inconvenience to the flockmaster, loss of feed by waste, and discomfort to the stock all winter.

During the pleasant weather of October, a good time is afforded to paint buildings. At this season of the year, flies, dust, and the scorching heat of a summer's sun, are not to be contended with. Our experience has been that paint applied in dry and not over hot weather is much more durable than that put on in and exposed to the hot sunshine.

Poplar is of little use until thoroughly seasoned, as it shrinks greatly.

Size of Building Timber.

Many years ago, when good timber was so abundant that a large sill or beam would cost no more than a small one, builders were apt to estimate the strength and firmness of a frame structure by the size of the timbers. If a barn or dwelling, for example, were constructed of large and heavy timbers, it was thought safe to assume that the edifice must be a strong one. But as builders came to study the strength of building materials, they found that the stiffness of a framed structure was dependent on something else than the size of the timber. To illustrate by a practical example, we will suppose that the sills, one foot square, are allowed to rest on the top of a strong foundation wall. Gains for the ends of the joists are usually cut in the sills, so that the timber beneath the joists is simply equivalent to a thick plank, so that there is nothing gained, but much loss sustained, by employing a very large sill, and divesting it of a large proportion of its strength by making numerous gains in one side. The strong foundation wall does not require the additional strength of a large sill. If, instead of a large stick of timber, a joist or plank, say two to four inches in thickness, be employed, having the joists extend entirely across its upper surface, so that the ends will be flush with the face of the wall, the construction will be better in every respect.

1. There will be a saving in the expens for lumber. 2. The timber can be carted and handled more economically. 3. The expense will be reduced more than one half. 4. The structure will be generally as strong and just as satisfactory, as if large timbers were employed. When the ends of large joists enter a gain only two to four inches, any considerable thrust of one or two of the joists against the sills will start the ends of all the joists out of the gains, as there will be nothing to hold them except friction, since nails are not usually used when joists are let into gains in the sills, But, when the joists extend over the surface of the sills to the face of the foundation wall, and are secured with nails to the sills, it will be almost impossible for a superstructure to spread.

Another consideration of no minor importance is, regarding the proper depth of joists proportionate to their length. When joists sixteen or twenty feet long are required, builders seldom enter into any calculation as to how deep they should be. As a rule, joists eight or ten inches deep are provided; whether a room is ten, fifteen or twenty feet broad, while there may be much economy exercised in the size of the joists, by careful attention to the strength of the materials employed, and the strains to which they are exposed. The rule for determining the proper and economical depth for joists is that the depth must increase as the square of the distance from the point of support on the wall. If a joist sixteen feet long, for example, were eight inches deep, the chief point to be considered in the strength of the materials is, whether a timber of that depth, eight feet from the point of support, will have sufficient strength to resist the superincumbent pressure.

A joist eight inches deep, of a given length, may sustain a ton without any deflection. But let the length be increased to sixteen feet, and the same weight, unless the joist were of superior timber, would crush it at once. Want of attention to these points has led to the construction of buildings in which, when the walls were far apart, the joists were quite inadequate to the superincumbent pressure.—*Technologist.*

Poultry Yard.

Birmingham Poultry Show.

The annual show of poultry at Birmingham, which takes place simultaneously with the cattle show at Bingley Hall, came off this year with its usual *eclat*, and though not quite equal in the number of its entries to those of 1867 and 1868, the largest on record, it surpassed by more than a hundred pens that of last year. The total number of entries was 2,578. There was a slight falling off numerically in Dorkings, as compared with last year, while in Cochins, Brahmas, and Game there was a considerable increase. The Game and white Cochins were a remarkably good class; the Buff Cochins were good, though not up to the Birmingham standard, and we are sorry to note the existence of the most reprehensible practices which too often disgrace poultry shows, as indicated by such criticisms as the following from the London *Field* :—"If the Judges had disqualified all the cocks with their tails pulled there would have been a great alteration in the prize list." Anything like trickery should always be a disqualification for the time being and ever after, we should say. Of the light Brahmas, the *Field* says :—"They were remarkable. In the first place the arrival of the specimens from America caused a flutter of excitement, as English breeders wished to see the standard there in vogue. Mr. Simpson's specimens were very large fine birds, necessarily suffering from the voyage, which told on them in the matter of condition. Their defects, judged by our standard, were that they were too creamy in colour, somewhat too leggy, and a little deficient in pencilling on the hackle; but they held their own most creditably, and deservedly found their place in the prize list in despite of the drawbacks of the voyage. The gem of the light Brahmas were Mr. Crook's pullets; one, if we dare use the term, was absolutely perfect." The French fowls were "magnificent." The largest class was that of Game, numbering 374 pens. The specimens of Dominique from America excited considerable attention. The following are the weights of some of the principal pens :—Ducks, white, Aylesbury, drake and duck, first, 18 lbs. 9 oz.; second, 18 lbs.; third, 17 lbs. 16 oz.; fourth, 18 lbs. 4 oz. Rouen, drake and duck, first, 9 lbs. 4 oz.; second, 10 lbs. 6 oz.; third, 18 lbs. 2 oz.; fourth, 17 lbs. 4 oz. Geese, white, exceeding one year, gander and goose, first, 58 lbs. 12 oz.; second, 56 lbs. 5 oz.; ditto birds of 1870, first, 49 lbs. 4 oz.; second, 49 lbs. Gray and mottled gander and goose, exceeding one year, first, 62 lbs. 6 oz.; second, 54 lbs. 6 oz.; ditto, birds of 1870; first, 53 lbs. 6 oz.; second, 49 lbs. 1 oz. Turkeys, cocks, over one year, first, 36 lbs. 4 oz.; second, 35 lbs. 2 oz.; ditto hatched 1870, first, 24 lbs, 6 oz.; second, 23 lbs. 12 oz.; hens, exceeding one year, first, 31 lbs. 4 oz.; second, 29 lbs.

Correspondence.

Farming as a Profession.

To the Editor.

SIR,—It is frequently the subject of remark that the sons of Canadian farmers abandon the calling of their fathers for modes of life less laborious, and, in their opinion, more respectable. Perhaps, as the subject is important, you will allow space for a comparison between the practice of agriculture and some of these very much more dignified pursuits.

Commencing with the three learned professions—Law, Medicine, and Divinity—we may notice that in none of them, judging by the successful, can the hope of rising above mediocrity be indulged, unless some years be devoted to earnest, toilsome, and expensive studies, and, these past, what is the prospect?

In Law. Were the object of law and of lawyers always the impartial administration of justice, a worthy ambition might well inspire the novice with hope to excel in such a noble profession. But will he never find the court of law an arena where subtlety—craftiness—chicanery—are recognized weapons and armour, which he must adopt, or combat at disadvantage? Will he not be expected to use every means to persuade judges, cajole juries, and browbeat witnesses? Can he always choose between brief and brief, and refuse to advocate the cause which his heart suspects to be unjust? Will he not be surrounded with temptations, environed with inducements to become a mere legal mercenary—a purchased free lance—ready, if gold be also ready, to fight the battle of might against right, assist the powerful to bear down the helpless, and aid the criminal to evade punishment? And at the best, supposing all these degradations avoided, he must expect his health impaired by the confinement of offices and the contaminations of court-rooms, his temper soured by the opposition of rivals, and his mind warped by a lifetime passed in petty and vexatious disputation.

In Medicine. The practitioner may expect—nay, must even hope—his slumbers disturbed, his meals interrupted. Day and night, in all seasons and in all weathers, he must, in caring for the health of his patients, be careless of his own. And though he be skilful, laborious, and charitable, how frequently are his abilities decried, his good faith questioned, and his most humane actions ascribed to mere greed of reward. Master the resources of science as he may, how often must he endure the mortification of finding the ignorant empirio preferred to himself? He may—often does—after many years of toil, attain wealth and position; but, as in all overcrowded professions, the blanks are many, the prizes few, and those few scarce worth the labour necessary to secure them.

In Divinity. In this field there are not—there cannot be—too many labourers; but as none should, so none need, enter it with the hope of obtaining ease, or the view of amassing wealth. He whose talents can secure him those in this employment, could, in others, have obtained more. Of all men of education and refinement, the clergyman is, perhaps, the hardest worked and the worst paid.

I might speak of the merchant, steadily pursuing the phantom of wealth, bending over his books, and spending his life in the dusty counting-house—of the manufacturer, living amid the smoke of coal and the din of engines—and ask whether these lives are preferable to that of the farmer. Why, they themselves, if asked, frequently answer that they hope one day to retire, and spend the evening of life amid rural scenes, amusing themselves in the cultivation of a farm. For the farmer to leave his occupation for theirs, then, would, not improbably, be to return to it when vigour and strength are gone, and he can no longer enjoy it, or, at most, only experience the poor satisfaction of hiring others to do that which he once had pleasure in performing himself.

And, leaving these, let us ask what is the present, and the probable future position, of the Canadian farmer? In the past, he suffered great disadvantage. Raising little but wheat, which had first, with great difficulty, to reach, and then to cross the ocean before finding the market, he exhausted his land, and invited the attacks of insects by the yearly increasing weakness of the growing plant, in endeavouring to raise that which alone he could sell, and which he must sell, to live. But now, all that his dairy can produce or his fields grow, and every head of cattle he can fatten, find ready sale in Canadian, American, or European markets. He will soon carry produce thither much more cheaply, by the network of railways, either now built, building, or projected, which will intersect the whole country; and by canals, which on the completion of their intended enlargement, will allow the transport of freight in unbroken bulk from Superior to tidewater, and to Europe itself. He has paid over-high wages; the tide of emigration set to the States. It has now turned, is flowing to Canada, and will soon give him cheaper labour, and a broader home market. He formerly sent to Europe and to the States for his clothing and his tools. Now, Canadian looms weave fabrics little inferior to those of France or Scotland; and Canadian artisans form, from English iron, tools far superior in shape and temper to those they imported from England, and will soon make yet better ones, when Canadian iron (far better than average English) is available. When we remember, also, that scientific farming here is in its infancy—a mine of wealth which the farmer has never explored; that he has yet to practise and benefit by the methods adopted in other countries—the management and removal of surplus moisture from the soil—the admixture of different earths—the employment of waste substances as manures—the obtainment of shelter and climatic advantages by plantations of trees—it is not too much to expect that the average position of Canadian farmers, if not approaching affluence, will be, at least, one of complete independence.

The Canadian farmer now holds the very position in which the sages of Greece and Rome strove to maintain their rural populations. While those populations held that position, they preserved their liberties, for its occupance rendered impossible the existence of the luxury, effeminacy, and corruption, which destroyed those great nations. That safeguard is formed by such division of land as, giving many a liberal portion, gives few a very large one. The freehold tenure of this land secures the farmer from the political pressure often exercised by landlords elsewhere, and supports, perhaps, the most free and independent constituencies in the world, consisting of bodies of electors too deeply interested to be careless; too wealthy to be bribed, and who may be, if they wish, too well-informed to be deceived, by unscrupulous politicians. In a country destined to be principally agricultural, the votes of these constituencies will always outweigh the less pure suffrages of the towns, given by men less interested, and more accessible to pecuniary influence. In these words is expressed a great fact—that the Canadian farmer, if he choose, may govern, as he chooses, the country wherein he dwells. In so doing, no man makes him afraid. He is not, as in Continental Europe, awed by governments and dynasties; nor, as in the British Isles, influenced by powerful individuals; nor, as in the United States, outvoted by those who possess neither property nor education. This power is no slight one. His country is one of great resources and vast possibilities, and, well directed, may become, socially, commercially, and politically, one of the first in the world.

There is neither profession nor calling more dignified than that of the agriculturist; and if, in any respect, others are his superiors, it is simply in point of education. To rival, or to surpass them in this, it is not necessary that he adopt their mode of life. Surely, the book of knowledge is not closed to the farmer. Comparing his manner of life with that of the non-farming community, the health and comfort he generally enjoys—the pleasures enjoyed by those of his avocation alone—the delights of a life passed amid the beauties of nature, in the pure air and bright sunshine—will suggest themselves to all. And it may be remarked that the farmer appears under the peculiar care of the Almighty. Of other callings the Scriptures say comparatively little; of that of the farmer they speak everywhere, and everywhere encouragingly. To him is given the earth, as a manufacturer with whom to deal—one who asks but the refuse, and gives in return the most beautiful and the most valuable. He is surrounded with guides, with assistants, with warnings. Mighty and powerful agencies are his servants. The sweet influences of the seasons—the refreshing showers, the ripening sun—all elements of air and water, earth and sky—labour incessantly for him. His calling is the most important, because the most useful—the most noble, because the least dependent. Luxury and weakness are the offspring of cities; but the fields and the woods are the birthplace and cradle of strength and manhood. From the flock God called David—from the plough Elisha. From the plough, to save his country from foreign thraldom, came Cincinnatus; and to it, his task accomplished, he returned, despising, compared with his rural life, all the wealth Rome could give, and all the honours her senate could bestow.

The Canadian farmer comes of a nation unrivalled for perseverance and determination. There are those of his race who have, generation after generation, farmed in the same name the same lands for eight hundred years. Successful agriculture is the basis of all national greatness. Spaniard and Portuguese, Frenchman and Hollander, have in turn overrun and claimed sovereignty in all the vast domains of Australasia—the immense regions of North America; but their places know them no more, for the Anglo-Saxon has subdued and holds the land by the force of the plough. By it the farmer of Canada has subdued broad and fertile regions. He has yet broader, yet richer, to possess. Were it not better that he continue to pursue his own occupation, rather than exchange it for others more ignoble, or less agreeable, in which he may secure greater wealth, but in which he will find less pleasure—in which he may obtain more consideration from the ignorant, but not greater esteem from the wise? May he not obtain greater happiness, perhaps greater prosperity and higher distinction, if he remain on the land God has given him, cultivating it with the perseverance and success of his forefathers, doing, as they did, his duty by the land, and determining, with sturdy honesty of heart and purpose, to leave it to his successor better than he himself found it?

R. W. PHIPPS.

Toronto, Jan. 2, 1871.

TO CORRESPONDENTS.—We would once more repeat one or two hints to our correspondents—write briefly, legibly, and on one side of the paper only. In making enquiries, do not mix up a variety of subjects. Do not, for instance, send a string of queries in horticulture, entomology, cattle diseases, &c. Write each question separately.

Encourage the Boys and Girls.

To the Editor.

SIR,—We farmers in Canada are too prone to consider our own claims on our children, rather than deal with them as we would probably like to be dealt by. Our sons are expected to remain contented on the farm, working for bare food and clothes until they are twenty-one, and then they are allowed to begin for themselves. They naturally feel that, up to that age, all they have ever got by working on the farm is entirely deficient in encouragement, so far as it is likely to reconcile them to the same course of life; and they also feel they are fit for nothing else. They have not education or business knowledge to enable them to go to some other avocation, and consequently are dissatisfied with the past and quite undecided for the future; and this feeling applies not only so far as their prospects of ultimately possessing a farm of their own goes, but causes them also to be quite undecided as to the advisability of following agricultural pursuits at all. The consequence is that we continually hear the parents say, "Our boys are going away to the States, and cannot content themselves on the farm in Canada." The father has never done anything to make them contented here or on the farm. The boys rarely have any good clothes, and still more rarely any money, and what clothes or money they have had has (with the exception of the most ordinary clothing supplied at home) been the result of working out for some one else, who has paid them for their labour the same as they would have paid any other hired man. This course is bad in every way.

Young men, about the time of what is called coming of age, naturally wish to marry and have a home of their own; and experience has shown that all such ought to marry and settle in life if healthy and inclined to do so; but at the same time they must have something more than the wife—which certainly usually can be obtained for nothing. Such is not the case, however, with farm stock or furniture; all this must be bought and paid for, or obtained on credit, and these very debts so contracted generally cause a sour, unpleasant, and often regretful feeling at ever having married at all, and a wish that they also, like some other neighbour's son, had moved away to some other country or locality, where no thought of marrying or home could from circumstances have been entertained, and where all their earnings could have been expended on themselves. These instances of leaving home and obtaining employment elsewhere, rarely ever end well. They never, or very seldom, do result in anything like a home far away; but the young man moves from place to place, usually with plenty of money for absolute necessaries, but with expenses naturally much increased; and he generally ends after 10 or 15 years' absence, with a return visit to the old home-

stead; having accumulated much knowledge of the evils of such a kind of vagabondish life, and any quantity of insight of taverns, tobacco, drinking, and generally gambling experiences. If he now marries and settles at home, as he often does, he is a pest; and usually demoralizes all the young men who are, like himself in former years, unsettled in their future prospects. In the relation of his fifteen years' absence, of course, there will be much to amuse and interest such hearers in these recitals. In these tales he rarely relates the pains and difficulties he had encountered, or if he does, they afford only the more interest and excitement to the audience.

Now this is true, and thousands know it to be true, and regret when too late that they did not cause the boy, when yet young, to have an interest direct in all that was done on the farm, or at least in something that was continually being raised or provided for him, to be appropriated to his use when the time comes for him to require them. To do this will absolutely pay the father well; for every young man of, say 18 to 23, is worth $120 to $140 a year and his board, and five years of this saving would accumulate $600; and any lad would consider himself rich with such a sum, and, in fact, would not desire to have so much laid by for him; and to avoid temptations this amount need not be in money, but can be paid in cattle, teams, beds, bedding, and a variety of necessaries, all of which can be raised on the farm, and to which for the most part the son's own exertions have mainly contributed. The same principle applies to girls. They must have nice dresses; others do, and they must, or they will at once hire out to those who will not require them to work any harder, and who will pay them sufficient to obtain them. We all know that sometimes on a farm there is little enough to sell to make both ends meet, even where all is sold that can be sold; but we also know that under such circumstances, all grown up children who are able and willing to work, see just as well as we older people—that there must be something wrong somewhere or their labour must be unprofitably applied; for if they hire with some other person they can get plenty of necessaries, and whilst they remain at home their labour is absorbed and they cannot do so.

C.

Crops in Sidney—Fall Ploughing, &c.

To the Editor.

SIR,—It is rare that we can plough so late in the season as now, Dec. 10. We have had scarcely any winter weather. To-day the weather is as fine and warm as in early September. There has not been much interruption to Fall work, and therefore a great deal has been done, especially in ploughing. The value of this operation at this season depends, I think, upon the character, situation, and condition of the soil. Heavy, tenacious clays are benefited, because the alternate freezing and thawing tend to pulverise and set loose the constituents of the soil, and they are in a condition to receive and retain moisture, so much needed in such soils. Early fall ploughing is of value to all soils, when the intention is to plough them again in the Spring, unless on hill sides or in places exposed to the action of the Spring freshets; for in that case, much of the valuable surface soil would be carried away and lost. Clover soil I would prefer to plough as late in the Spring as I could, allowing the grass to start, and thus add to the fertility of the soil. If land could be ploughed early in Fall, and sown to field turnips or rye, it would be better, thus affording pasturage at a season when it begins to fail.

Crops in this vicinity were not so good as we anticipated, the yield being light. Clover for hay was almost a total failure, although the second growth will afford some seed and fodder. Experience proves that a varied husbandry is better than depending exclusively upon one crop. What little fall wheat was grown has yielded well.

There is a kind of mania for barley raising at the expense of other cereals. It is surprising that men can expect all kinds of soil, in all sorts of conditions, to raise this crop. From a little more than six bushels sown I had 103 bushels, while many had far less from double the quantity. It was grown, after clover, growing peas first, then barley. My rotation would be, when possible—1st, clover; 2nd, peas; 3rd, barley; 4th, corn, potatoes, or roots with all the manure applied to them, or a crop of buckwheat ploughed under and another sown, succeeded by summer fallowing for fall wheat, seeded to clover. By this course, the soil would be kept in health.

Fall wheat has attained a very rank growth on this Trenton limestone soil, being upwards of a foot high? Some say that pasturing it is an injury. Is this so? I know I would rather have meadows unpastured late in the Fall.

The errors of much Canadian agriculture seem to me to be, 1st. Too little thought for the future, like a traveller starting on a journey, who makes his horse do all he can at the outset, to be exhausted before the journey's end. Borrowing of the future to pay the present, and every loan principal. 2nd. Want of proper rotation; and a better tenant system. 3rd. Want of community in farming. Every neighbourhood should be a sort of agricultural bank, in which each farmer should be a share-holder. Machines, stock, and grain of the best quality should be had at some one place. If each farmer were given his share to do in this way, all would be benefited, and a man could find a good stock animal in his own neighbourhood. The club system would pay. 4th. The education of farmers' sons does not, in general, fit them for the discharge of their future employments. To many the book of nature is a sealed book, while they may know everything about other books. 5th. That false idea of wealth, which is not contented with a substantial sufficiency, but asks for more acres, instead of in principle doubling the acreage of fertility they already possess. 6th. Hoarding and loaning surplus capital, instead of expending it in useful improvements, affording employment to labourers.

Upon the whole, however, farmers are progressing. When they see it to be their interest to invite immigrants to comfortable dwellings and conveniences upon their farms, thus insuring permanent and reliable help, one great step in advance will be taken.

The circulation of practical agricultural information by papers and otherwise, the settling amongst us of immigrants of the true stamp, the introduction of labour-saving machinery, the dairy system, the building up of our cities and towns in manufactures, &c., and the work of the true teacher and minister are doing much for the weal of the farmer, and tending to elevate him and his profession.

The immigration of boys and girls, with the proper safeguards, will do much for the country; but if more from the agricultural districts could be brought out, it would be better; or give those who do come a preparatory training. There are too many false ideas about the country in their heads; they have to be educated over again in many cases. They need to be taught self-reliance, and not dependence upon those who employ them or bring them out; however, they soon learn and become useful.

H. LE BOUTILIER.

Sidney, Hastings.

Leached Ashes for Sugar Beets.

To the Editor.

SIR,—I have recently purchased a farm of 300 acres, the land of which is well adapted to raising roots of the ordinary kind, and in the spring I intend putting in a few acres of sugar beet, provided I can obtain the seed, and would be greatly obliged if you would give me your opinion as to whether leached ashes, of which I have a great quantity, mixed with barn-yard manure, would make a good dressing, and if so, in what proportion. People here tell me that ashes will prove injurious, unless the quantity be very limited.

O. C. H.

REPLY.—We would not advise the use of ashes for this crop, as the presence of potash even under ordinary circumstances, is injurious, and it is one of the constituents to be avoided and dealt with individually in the manufacture of beet sugar. The seed of the most reliable sorts can be obtained here, provided orders with reference or cash be forwarded at once to the wholesale seedsmen of this city—James Fleming, Charles Dawbarn, or J. A. Simmers, all in the wholesale importing seed trade. Your best course will be to use good deeply cultivated rich loamy land, without manure, as a trial. The great object being to produce *sugar in the beet*, not by any means the largest roots, nothing but absolute practical trial with various kinds of the sugar beet seed, and an absolute test of the different sorts in producing sugar, will enable you to act with safety. This course has been found advisable again and again; and small beets, sometimes, with the best kind of soil, will produce double the sugar that large roots will, under adverse circumstances of soil and seed.

Land and Farms for Lease.

"An English Yeoman's Son" wants full particulars on the subject of the value of wild land, and also of cleared farms, west of Toronto; also whether farms can be rented, and at what rents.

Wild land, near any of the present lines of railroad, except those built last year, is worth from $15 to $20 an acre, if of the best quality. If otherwise, and the land is wet or poor, from $6 to $10 an acre.

Cleared or partially cleared farms are worth from $20 to $30 and $40 an acre, according to buildings and situation. The cost of clearing land is usually about $16 an acre, and includes fencing.

There are farms to be rented, west of Toronto, in great numbers, caused by family circumstances, death of elder members, or other casualties. The rent is from $2 to $3, and sometimes $4 per acre, for the cleared—no charge for that uncleared—according to buildings. An advertisement in the GLOBE or CANADA FARMER would obtain answers, provided it were inserted a reasonable time.

It is impossible to extract green stumps. You must wait six years for them to decay out. We refer you to the back numbers of the CANADA FARMER and articles on "A Backwoods Farm," for further information. Every word of those articles is based on personal experience.

INFLUENCE OF FEED ON MEAT.—A "subscriber" asks "whether the quality of meat is affected by the kind of food given to the animal," and particularly if the turnip flavour, so noticeable in the milk of cows fed on this root, would impart a similar flavour to their meat? Most assuredly will the quality of the flesh be materially influenced by the kind of food that has been used, and the flavour and odour of turnips are sometimes very perceptible in the meat of animals that have been exclusively or largely fed on them, more particularly if the beast be killed soon after a meal. We once purchased from a neighbour a hind quarter of a cow that had been choked while eating turnips, and we shall never forget the strong turnip taste that persistently clung to that beef, in spite of salting, and every conceivable mode of cooking devised to overcome the obnoxious flavour.

NOTICE.—Our readers are specially requested to take notice that this number of the CANADA FARMER is sent free to all subscribers for the past year; but that no other number for 1871 will be sent to any one unless his subscription for the current year is paid. Intending subscribers should send in their names and remit promptly, as the paper is not now stereotyped, and the number printed will be regulated by the subscription list.

Advertisements for the "Canada Farmer" must be sent in to the office of publication early, and in order to secure their insertion in the forthcoming number, must in no case be later than the 7th of the month.

The Canada Farmer.

TORONTO, CANADA, JAN. 16, 1871.

OUR NEW VOLUME.

Once more we greet our readers on the opening of a new year, and issue the first number of another volume of the CANADA FARMER, under every encouragement to prosecute the work with unabated zeal and energy. We tender hearty thanks to all friends—and their numbers increase—who have in various ways evinced their appreciation of our efforts in the past, and shall study to maintain for the journal the reputation already won.

Our aim and objects have been so often set forth that it is unnecessary to reiterate them. We again solicit the co-operation of Agricultural Societies, and all interested in the progress of Canadian Agriculture, and very cordially invite the communications of farmers on all subjects connected with their calling. The pages of the CANADA FARMER are always open for temperate discussion, and the records of practical experience on matters coming fairly within the scope of an agricultural journal.

In accordance with our usual practice, we send this first number of the volume for 1871 to all subscribers for the past year; but no future number will be sent to any one whose subscription for the current year is not paid. Our readers will please take special note of this intimation. Letters are continually addressed to us from parties who have not paid their subscription, asking why the journal is not sent. This first number is the only one sent in advance of the subscription. The price will continue, as heretofore, $1 per annum, including postage. The terms for clubs and societies will be found in the prospectus which accompanies this issue.

Farm Accounts.

A correspondent, over the signature H. P. W., wishes to have explicit information as to the method of keeping farm accounts. We have repeatedly urged the importance of the subject, and now, in compliance with our correspondent's request, we will give, to the best of our ability, a simple plan of farm accounts, such as can be easily adopted by the least educated of our farmers.

H. P. W. gives as a reason why at least fifty farmers keep no account of their receipts and disbursements, to one who adopts some system for this purpose, that many find they "don't know how." Now, we would supplement his very plain, matter-of-fact reason by another—that they *will not* see the advantage of anything new to them, or of anything approaching to what is generally termed book farming. Many say, what can be the benefit of keeping accounts to me, for I have gone all my life, and not done so badly either, with no attempt at book-keeping? This reason doubtless seems to many as not only feasible but forcible, and yet it may be well answered by the known result of certain parallel platitudes. Many a man has gone for years without a proper provision of clothing, neglecting his body, and defying the rigour of a severe and changeable climate, but in the majority of cases has he not, in his advanced years, earnestly repented of his imprudence?

To those who have never kept accounts, we say, you don't know the advantages to be obtained. Begin at once upon the first day of the new year, and be assured that if you give the attempt a fair trial, you will not relapse into your former ignorance of the state of your affairs and exchequer.

Now, let us give a few instances in which the farmer has done himself much injury by a neglect of some simple system of book-keeping—some tally of his cash and other transactions.

A neighbour ran an account at the blacksmith's shop, and the other day he came in considerable trouble, asserting that the smith had charged him for a great many jobs that he had never had done. What remedy had he? Why, positively none, but an appeal to law, which, with the scant evidence that our friend possessed (his own memory), would in all probability have resulted in an unfavourable verdict, with its accompanying addition of costs. We managed to convince him, sorely against his will, that not only had his whole trouble in this case arisen from a neglect of keeping some simple memorandum book, but that there could be no possible doubt that in his long experience he had both been cheated and had cheated himself over and over again. We showed him the simple system of accounts which will be presently submitted to the reader, and he departed assuring us that he would from that date follow out the advice given.

It is a moral impossibility for a man to retain in his mind a record of all the odd jobs that he has to have done by the blacksmith, the harness maker, the waggon maker, and all those other mechanics and tradesmen with whom he is in business brought in contact. Even allowing, for a moment, that a man should be possessed of such a wonderfully retentive memory as to be able to keep such record in his mind, this power would be found of little value when a bill or a dispute came up for decision in a court of law; there they require black and white evidence on such matters.

Again, at one season a man buys a plough, giving in payment his note of hand; he makes no entry of the transaction, and presently he buys first one thing and then another upon credit. The latter articles are perhaps not absolute necessities; and he would not have gone into debt for them, had he been able, by glancing at his accounts, to perceive how many liabilities he had already incurred.

It may be said against this that a man should do nothing but by cash transaction, and then his only account need be his balance at the bank. The principle is good, but such is not a practical possibility to the general run of Canadian farmers. Until we become, as a class, men of larger capital, the credit system must continue. Moreover, from the very nature of the farmer's business, from the fact that his returns are not quick, but come in at long intervals in large sums, much as we may regret that it must be, yet we cannot now, nor shall we ever be able to adopt the cash system between the farmer and those whom he honours with his custom.

A book might be filled with instances of the losses directly and indirectly resulting from the neglect of book-keeping, and with "awful examples" of men who have sunk deeper and deeper in a mire of debt, simply from the fact that they never did know exactly to what amount they were at any one date liable.

Strictness and accuracy in book-keeping may be arrived at without elaboration or intricacy. If, however, a farmer is able to keep such a close and minute set of books as will enable him at any given time to state the precise cost of each operation in the field, or the exact relative values of different processes of feeding, of different classes of cattle, or of different modes and rotations of cropping, so much the better, not only for the individual, but for the instruction of his brother farmers, and of those who shall come after him.

All that is absolutely necessary is such a current account as will enable a man to find out any day what he owes and is owed, what he has spent in a given time or in a given way, and what he has realized by his sales.

In this money account let him embody his general memoranda, so that he can make this book not only an account book, but also a daily record; this will be the first book, which may be called a *Day Book*.

The second book he may call his *Account Book*, or *Ledger*.

Let us now proceed to briefly illustrate the method of keeping each:—

The following is an imaginary sheet in the Day Book, extending over two pages as you open the book:—

FROM ——— DAY OF ———, 187—, TO ——— DAY OF ———, 187—.

DATE	MEMORANDA.	LEDGER FOLIO.	CASH RECEIVED.	CASH PAID.	TRANSACTIONS NOT CASH.
	ACCOUNTS.		$ c.	$ c.	$ c.
April 1.	40 bushels barley at 80c				
"	Expenses to Toronto with barley			1 50	
"	2 stable pails			60	
"	For 20 bushels seed oats from J. Smith at 60c.			12 00	
Friday, 10	Daisy calved to-day (bull).				
"	4 lambs from 3 ewes.				
"	Engaged John Jones at $15 a month from 21st April				
"	Sold Robinson, 2 tons of hay at $11				21 00
Mon.,	21	Sowed 6 acres barley with 144 bushels.			
"	"	Seeded down same with 20 lbs. clover and 30 lbs. timothy.			
October, Sat.	12	Threshing—Wheat, 220 bushels off 7 acres.			
"	"	Barley, 100 off 4.			
Mon.,	21	Had two horses shod and iron plough fixed at Jacques'		2 50	
Sat.	29.	Put up two hogs to fatten, feeding chopped peas		8 00	
Nov.,		2 steers 3 years old—Hay, turnips, and a little chopped peas			
"		Sold 100 bush. apples to W. Hillman, at 75c.			
"		Sold you 6 cords of wood, to be delivered in six months at 6 per cent			120 00
			$ 22 00	$ 90 00	$ 141 00

And so on.

Now, any farmer can buy a blank book, let it be a good wide one, and rule it himself, as in the above sample; or he can, by paying a little more, have it thus ruled by the bookseller. This ruling extends over both pages of the book opened. The first side is exclusively devoted to important memoranda. The second side has a place for items of *accounts*, a column for any actual cash the farmer receives, and a column for any actual cash he pays out. Notes of hand, either given or taken, produce given to set off against a tradesman's account, or any money matter in which *hard cash* does not actually pass from or to the farmer, should be entered in the third column.

Now, before we leave this account, it may be well to suggest a method by which the farmer can be certain of keeping the money part correct. 1st. *Enter the day's transactions every night before going to bed.* 2nd. Keep a tin box in the house, into which *all* your cash at home should be put. Never put any money in that box without *at once* entering in your day book how you got that money.

Never take any money out of the box without saying in your book what you are going to do with it, except in one case. If you take out a sum, say $15, before you go to town, and you do not know what the price will be of the articles you are going to buy, instead of entering *then* in your book, put back in the box what is called a "due-bill," that is, a piece of paper with $15 written on it. Thus, when you come home, you can open the box, and you will see a paper with $15 written on it, you will then know that you took that sum out of the box. *Before* you take out that paper, be sure and account in your book for the $15 taken out of the box. When the entry is made in your book, you can tear up the paper.

Last and most important, *Never trust to memory* in book-keeping.

The *Account Book* or *Ledger*:—

In this book there will be nothing new. The book is used for the purpose of putting in order, one below the other, every item entered in each column of the day book.

The ordinary merchants' ledger, kept by all booksellers, is the very book required. When you have one, divide the book in two parts. One part will be a cash account, or will be composed of the items in the first two columns of the day book, set upon their proper sides. The other will be a "transactions not cash" account, and will be composed of the items in the third column of the day book, set upon their proper sides. In both cases the account will be, as in the day book, carried on upon the two pages of the opened book.

The following examples show the manner in which the foregoing entries from the Day Book would be transferred to the Ledger:—

CASH RECEIVED.

DATE.		$ c.
April 1.	40 bushels barley at 80	32 00
Oct. 12		

CASH PAID.

DATE.		$ c.
April 1	Expenses to Toronto	1 50
"	2 stable pails	60
"	20 bush. seed oats	12 00
" 21	Robinson, serving cow Daisy	50
Oct. 12	3 men, threshing	3 00
" 21	John Jones, for 6 months' wages	90 00

TRANSACTIONS NOT CASH. RECEIVED.

DATE.		$ c.
April 21	12 lb. butter to go against Jackson's account against me, at 25c	3 00
Nov. 29	Smith's note for value of corn, 6 months at 6 per cent	120 00

TRANSACTIONS NOT CASH. PAID.

DATE.		$ c.
April 21	For plough, gave note to James & Co., for five months, for	21 00

And so on throughout the year.

If you require to balance your book at any time, you simply have to add up the disbursements and the receipts separately, subtract the former from the latter, and the result should be the sum that you have in hand. If you wish to know how much seed has cost during the year, you have only to run your eyes down the *Paid* column, pick out each item of seed and add together, so you can find how much you realized by your barley or your wheat, or your cattle, or any other special produce.

In the account headed, Transactions not Cash, by adding up the column on the left page, the farmer can tell at any time what is due to him, and by adding up that on the right page, knows at once how much his outstanding debts amount to.

There are other more elaborate systems of book-keeping, which might be preferred; but we have given one of the simplest, and endeavoured to make the explanation so clear that any farmer may practise the method.

Agricultural and Arts Association.

ELECTION OF MEMBERS OF COUNCIL.

By the provisions of the existing statute, the annual meetings of all the Agricultural Societies in the Province of Ontario must be held during the third week of January—that is, between the 15th and 21st days of the month, at which meetings accounts will be rendered, and the officers elected for the ensuing year. The Act also provides that four of the members composing the Council of the Agricultural and Arts Association, shall annually retire, and their places be filled by a fresh election from the districts which the retiring members respectively represent. The Secretary of the Association has accordingly issued a circular notifying the names of the members who this year retire in rotation and the districts to which they belong. The circular is addressed to the Secretaries of the Societies immediately concerned, and is as follows:—

SIR,—In accordance with the provisions of the Agricultural and Arts Act, I beg leave to state that the undermentioned members of the Council of the Agricultural and Arts Association of Ontario will retire in the month of January next, viz:

District No. 5.—Durham, Northumberland, Peterboro' and Victoria—John Walton, Esq., Peterborough.

District No. 6.—York, Ontario, Peel, Cardwell, and City of Toronto—Geo. Graham, Esq., Brampton.

District No. 7.—Wellington, Waterloo, Wentworth, Halton, and City of Hamilton—James Cowan, Esq., Galt.

District No. 8.—Lincoln, Welland, Haldimand, Monck and Niagara—J. C. Rykert, Esq., M.P.P., St. Catharines.

The retiring members are in all cases eligible for re-election.

In Section 14 of the Act it is provided that the County Agricultural Societies in the several Districts represented by Members whose term of office has expired, shall, at their annual meetings provided for by Section Thirty-Seven of the Act, each elect one person to represent it at the Council of the Association, by a majority of the votes of the members of the Society present at such meeting; and the Secretary of each Society shall, *within eight days after the election, forward to the Commissioner of Agriculture the name of the person chosen by the Society.*

In section 37 it is provided that the said Societies shall hold their annual meetings in the third week, that is to say, between the fifteenth and twenty-first days inclusive of January in each year.

I beg leave respectfully to request your attention to the above requirements of the Act.

I have the honour to be, Sir,
Your obedient servant,
HUGH C. THOMSON.
Secretary,
Agricultural and Arts Association.

It will be seen that by this elective system, the management of our Provincial Association rests with the Agricultural Societies generally, and virtually with the farmers throughout the land, for every intelligent farmer should be a member of an Agricultural Society. It is too much the fashion in some quarters to cast indiscriminate blame on the Association and the governing board. Instead of so doing, it would be far wiser for every farmer to exercise the power of franchise, and see to it that right men are deputed to represent the interests of agriculture in the Council. With well-appointed officers in our Agricultural Societies, and fit representatives on the Board of the Provincial Association, we are persuaded the present law will in the main work well, and the true interests of agriculture be promoted throughout the country.

Foot and Mouth Disease.

This annoying disease has shown itself among the cattle in the State of New York, and Mr. Harison, Secretary of the New York Agricultural Society, has made a report upon it. After stating the character of the disease and the extent of its depredations, Mr. Harison goes on to say:—

"It appears to be almost certain that the contagion was conveyed to Duchess county by a drover, who, finding on his arrival at Albany with a lot of Canadian cattle that they were sick and unsaleable, and being afraid to go to any large market, shipped the animals to Poughkeepsie, and drove them thence across (by way of Pawling and Dover) to New Milford and Kent, in Connecticut, where the disease, as Dr. Guernsey is informed, is spreading quite extensively. Professor Law found it also in Massachusetts, in the neighbourhood (if I understand him rightly in a hurried interview on the 15th,) of Framingham, and there also the introduction of the disease is attributed to Canadian cattle. Mr. Law recommends the prohibition of the importation of cattle from Canada until the disease shall have been got rid of there; and if this is immediately ordered, and the diseased herds are rigorously secluded and the buildings disinfected properly, we shall probably be out of danger in a few weeks. If, however, we continue importing fresh contagion, there is no knowing where the end will be."

Now, as we do not doubt Mr. Harison really believes that the disease in question went from Canada to the United States, and is honestly trying to check its inroads, it will relieve his anxiety to know that the story is totally without foundation so far as Canada is concerned. There is no foot and mouth disease in Canada—not one case—nor has there ever been an authenticated case of it known

at any time in this Province. Had such a disease appeared in any part of Upper Canada, a week would not have passed before full particulars would have been communicated to the WEEKLY GLOBE or CANADA FARMER; but nothing of the kind, has been hinted at from any quarter. But to remove all doubt as to the non-existence of any case of the kind in Canada, we applied to Dr. Smith, head of the Veterinary College of Ontario, and got from him the following reply:—

"SIR,—My attention has been called to a statement in American papers that the Foot-and Mouth Disease *(Epizootic Aphtha)* has appeared in some parts of the State of New York, and that the disease was introduced into the adjoining State from Canada, where, it is said by the same journals, the malady has been some time prevailing.

"With regard to the existence of the disorder in this country, I have no hesitation in stating my belief that it has been hitherto altogether unknown amongst us, and, as far as my observation goes, the health of stock throughout the Province is excellent, and our cattle are entirely free from any disease of a contagious nature.

"I am, &c.,

"ANDREW SMITH, V. S.

"VETERINARY COLLEGE,
Toronto, Dec. 29, 1870."

We trust, therefore, that Mr. Harison will either withdraw a statement so unjustly injurious to Canadian farmers, or let us know something about that drover. Who is he? What is his name? Where does he live? In what part of Canada did he buy the cattle? From whom did he buy them? and to whom did he sell them? Let us have all the facts, were it for nothing else than the singularity of the whole story. Fancy a herd of cattle, suffering under "foot and mouth disease," gathered together in Canada—carried by rail 500 miles to Albany! There so sick as to be unsaleable; but re-shipped, nevertheless, at Albany to Poughkeepsie, 75 miles farther! Driven on foot from Poughkeepsie to Pawling; thence to Dover; thence to New Milford, and thence to Kent, in the State of Connecticut! And we are to believe that the New York and Connecticut farmers bought this rascally drover's beasts covered with "blisters and ulcers," carrying disease and death into their own barn yards. We submit to Secretary Harison that he really must have that drover hunted up.

Counting acres, taking mortgages, going over stock, and calculating interest, will not answer the question, "How rich is a man?" He is rich or poor according to what he is, not according to what he has.

Knowledge in Agriculture.

Every farmer is, or should be, a *practical chemist*. By this we do not mean that he is to be obliged to go through a course of studies, but his observation of the constant changes going on in the forms of matter, and the results attained by the application of different modes of culture and manuring each crop he grows, as well as the influences of atmosphere and climatic circumstances on the growth of plants, teaches him that there is something of the workings of chemical science mingled in all his undertakings, and according as he can clearly trace and understand the tendency of cause and effect, as he may do by the study of agricultural chemistry, so will he be successful in carrying out his undertaking of making the earth teem with riches Liebig has somewhere said, "there is no profession which can be compared in importance with that of the agricultural, as to it belongs the production of food for man, on it depend the welfare of the human species, the riches of States, and the success of commerce."

We are supposed to know that in all excrements of the live stock kept on a farm there is a substance called *nitrogen*, which by fermentation is converted into a more volatile substance, called *ammonia*, which is invisible, readily escapes into the air, and thus becomes lost, leaving only its salts behind. This substance is the most powerful fertilizer of plants we possess, as no plant can grow up to produce seed without it. There are, however, certain substances for which this ammonia has a greater attraction or affinity than for air, and which therefore can be employed to prevent its escape. These are called fixers of ammonia.

The quantity of ammonia in dung is not absolute, but proportionate, being largest in that of animals that feed exclusively on grain, and larger in proportion in that of the same class of animals, according to the quantity of grain or nitrogenous food they consume. The dung of a horse fed on hay alone is of considerably less value than that of a horse that gets a fair proportion of oats in addition. Cattle fed on grain give a more valuable manure than those that have the run of the straw-yard only.

It is only as the true principles of the nutrition of plants and the nutritive values of different foods of animals and the manures obtained by feeding them become generally known among agriculturists, that they can advance to a proper appreciation of their calling, and discover how much economy can be shown in controlling and managing nature, so as to make the most of her various resources. It is true that in the present time many excellent farmers are apt to look upon such acquired knowledge as unnecessary and superfluous, and rail at it as "book farming;" but they belong to a past generation, and as time goes on and civilization advances, it will be considered a reproach for any intelligent farmer to be ignorant of the leading principles of his profession, as embraced in a knowledge of agricultural chemistry. A very concise, and yet thoroughly practical and suggestive work on this subject, and one that ought to be in the hands of every young farmer, is Prof. S. W. Johnson's recent book, "How Crops Grow."

Beet Root and Beet Root Sugar.

We have been inundated with enquiries on this subject, correspondents asking us for the minutest details, to give which would require the editor and all concerned to be practical sugar manufacturers and sugar refiners, which they do not pretend to be. We furnish for the most part only *general*, and not, in cases like the present, *special* information. Persons who wish to go into the depths of the manufacture must enquire and study, and post themselves fully by the perusal of far more elaborate treatises than can be afforded by newspaper periodicals. We cannot undertake to answer all the separate and private enquiries that are made of us, and of those connected with this paper. Parties must read for themselves, form their own judgment, and act on their own common sense. There is plenty of this latter article among our agricultural readers. The object in view is an important one, namely, the production of a cash crop, which, with ordinary cultivation and good farming, should produce at least forty dollars an acre, where the roots alone are raised. The sugar, when made, will produce about as much more, and the crop of sugar beets will be a crop in addition to ordinary crops now raised. People who will not strive for such a prize as this are not fit to be helped, but in this as in all cases they must bear in mind the maxim that "those whom Providence most helps are they who labour with the greatest assiduity to help themselves."

Our inquirers will therefore please not to expect individual answers to questions put by letter on the foregoing articles. The subject will be continued from time to time, and is by no means exhausted. By waiting for another issue of the paper, the very questions asked may, and most likely will, be answered.

HORACE GREELEY'S ESSAYS, "What I know of Farming," which have been published in the *Tribune* every week during 1870, are to be printed in book form, and a copy will be sent, post-paid, to each subscriber who sends $10 for the Daily, $4 for the Semi-Weekly, or $2 for the Weekly *Tribune*, and requests the book at the time of subscribing. This will enable old subscribers to secure the Essays for preservation, on renewing their subscriptions, and new subscribers will, of course, be glad to obtain them, free of cost.

Agricultural Societies.

That these organizations among farmers have done much to advance the interests of agriculture, and encourage improvement in our system of husbandry, admits of no question. It is a good sign of the times that they are becoming more numerous each year, and that their attempts to awake an interest in the minds of the general public on the subject that so much concerns their well-being, namely, the production of their food and clothing, is meeting with great success. While much has already been done in the way of organizing agricultural societies throughout the country, there still remains much more to accomplish before the good work of improvement may be fairly claimed to be in more than a transitory state.

An article appeared recently in a cotemporary journal on this subject, that contained many good ideas and suggestions, though at the same time it was rather severe on the management of the Provincial Association, and also desired the abolition of the township societies—a measure we are not inclined to favour, at least for the present, or until the new railways now in progress are in working order. That the township societies have been productive of much good cannot be denied. This is especially the case in the more remote townships, and in those counties that have neither railway communication nor good gravel roads running through them. But in some of the older settled and more wealthy counties it is possible that the days of usefulness of the township societies are passing, and that more advantage may be gained by maintaining only the county societies, and endeavouring to make them as attractive and efficient as may be, by giving them such a liberal support from the farmers themselves as will enable them to offer prizes of sufficient magnitude for improved farms, stock and crops to induce men of capital and large ideas to set a good example of what the country is capable of producing.

Another matter that is deserving of attention is the more general introduction of trials of implements at different points. These will necessarily require time and money, and need to be held at a time when materials can be obtained for the implements to be tried upon. As the advantages would, however, rest principally with the implement makers themselves, and the publicity given to their inventions through the reports of the trials given in the columns of the press, rather than from the attendance of the public at the trials, which is rarely large, it would be only fair that they should bear the actual expense, divided *pro rata* among themselves; or by requiring an entrance fee, as is done to some extent in Europe and the United States, the agricultural society under whose auspices it is held furnishing only the prizes and the attendance of judges and proper officers to superintend the proceedings.

Notes on the Weather.

The year just closed has been somewhat remarkable in its meteorological as well as political aspects. It has been the warmest since 1846, the mean temperature being 45° 9, or 1° 8 above the average, every month being above the average except February, March, and November. The excess of the temperature in this locality for each quarter was as follows: Winter, 0° 10; spring, 1° 73; summer 2° 82, and autumn, 2° 67. The highest temperature was 88°4, which occurred on the 18th of June, and the lowest temperature —6°6, on the 21st February, giving a range for the year of 95°. The warmest day, the 28th of June, showed a mean temperature of 77° 7, and the coldest day, 29th of December, a mean temperature of 0° 7.

Rain fell on 116 days, to the amount of 33.898 inches, or 4.374 inches above the average quantity. The heaviest fall on one day occurred on the 11th June, and amounted to 2.360 inches. Snow fell on 77 days, and amounted to 122.9 inches, or 56.8 inches more than the average. This great excess is due to the heavy storms of snow which occurred in the month of March, 62 inches having fallen in that month. The heaviest falls in one day occurred on the 14th January and 27th March, when 16 inches fell on each of these days.

Thunder storms have been frequent and severe. The first occurred in April and the last in November; the most severe occurred on the 11th June. The total number for the year was 34, being the greatest number in one year since 1860.

No special feature, or deviation from the usual character of the month has distinguished the first of the winter months, and the last of the year. The average temperature has been 26° 5, which is, however, 2° 2 colder than December, 1869. The warmest day was the 5th, with a mean of 38° 9; the coldest the 29th, having a mean of 0° 7. This was also the coldest day of the year. The highest temperature occurred on the 5th, 45° 2; the lowest —5° 8, on the 29th.

The quantity of rain was 2.430 inches, being 0.778 inches in excess of the average, and 0.160 inches less than December, 1869. The number of rainy days was six, and the heaviest fall occurred on the 5th, amounting to 1.95 inches. Snow fell on sixteen days, and amounted to 15.9 inches, being 1.8 inches in excess of the average, and 8.8 inches more than fell in December, 1869. The amount of snow throughout the Province has been considerably above that which has fallen in the immediate neighbourhood of Toronto, so that there has been good sleighing generally for the prosecution of winter farm work, as well as for the enjoyment of the pleasures of the season, and—a matter of some importance—there is a fair covering for the winter wheat.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Report of the Fruit Growers' Association

We continue our extracts from the very interesting and valuable report of 1869, showing what fruits thrive and what enemies the fruit grower must contend with in the counties of Lincoln, Welland, Haldimand, Norfolk, Elgin, Kent, Essex and that part of Oxford and Middlesex lying south of the Great Western Railway.

APPLES.

The replies make it evident that this part of Ontario, extending from the Niagara River and along the north shore of Lake Erie, to Sarnia, having the Great Western Railway as its northern boundary (as near as may be), is the home of the apple in all its varieties. Here the tree, on soil not too wet, thrives in perfect vigour, and the fruit attains its highest perfection.

The following varieties are those most generally named as being profitable market sorts; they are put down in the order of priority of estimation, viz:—R. I. Greening, Baldwin, Spitzenberg, American Golden Russet, Roxbury Russet, Early Harvest, Snow Apple or Fameuse, Northern Spy, Red Astracan, Fall Pippin and Duchess of Oldenburg.

Messrs. Samuel Stoner, A. B. Moore, A. Morse and A. Francis, speak of some varieties as being too tender, naming Cayuga Red-streak, Ladies' Sweeting, Cooper's Market, Ribston Pippin, Hawley, Baldwin, Greening, Spitzenbergh, Northern Spy and Summer Rose. The committee take the liberty to suggest that the apparent want of hardihood complained of, especially in the orchard, may be due not so much to atmospheric changes as to the character of the soil. A cold wet soil is quite uncongenial to the apple, and induces a feeble and sickly condition which causes the tree to suffer from even a moderate degree of cold, and quite naturally the conclusion is drawn that the tree is tender, and the temperature is charged with that which is in reality due to unsuitable soil.

No disease of the tree is named. Insect ravages are numerous enough. The borer, both the saperda and buprestis, the tent caterpillar, the bark-louse, the aphis, the red humped caterpillar and the codlin moth, all contribute to the work of destruction.

Seventeen out of twenty-one name the spring as the best season for planting. A few prefer planting in the fall on light or gravelly soils.

Dwarf trees have been quite generally tried through this division, and the prevalent opinion seems to be that they are more orna-

mental than profitable, except in the case of pears, of which some varieties are very much finer when grown on the quince stock.

PEARS.

The following varieties of pear are evidently the most popular here, and they are put down in the order of preference, viz :—Bartlett, Flemish Beauty, Seckel, Louise Bonne de Jersey, White Doyenne, Vicar of Winkfield, Belle Lucrative, Duchesse d'Angouleme, Tyson, Winter Nelis, Lawrence, Sheldon, Beurre Clairgeau, Doyenne d'Eté, Beurre Bosc, Rostiezer, Beurre Diel, Beurre d'Anjou, Swan's Orange and Brandywine.

Some varieties of pear are spoken of by one or two as tender, but the remarks made by the committee with regard to tender sorts of apple apply with equal force here. It mus be that the tree suffers from some local cause, other than the ordinary fluctuations of temperature.

The following ten varieties, set down in the order of their popularity, are most thought of as market sorts, viz. :—Flemish Beauty, Bartlett, Louise Bonne de Jersey, Duchesse d'Angouleme, Belle Lucrative, Seckel, White Doyenne, Beurre Clairgeau, Lawrence and Beurre d'Anjou.

The burden of testimony is to the effect that there is not sufficient variation within this division to call attention to the varieties as being particularly hardy.

There is not much complaint of diseases or insects. The fire-blight is the only disease of the tree mentioned, and the borer and slug the only insects.

PLUMS.

The following plums are most popular in the order given, viz. :—Yellow Egg, Imperial Gage, Green Gage, Lombard, Smith's Orleans, Yellow Gage, Duane's Purple, Bradshaw, McLaughlin and Coe's Golden Drop.

Plum trees are all sufficiently hardy to thrive in this division.

The following sorts in the order named are esteemed the most profitable, viz. :—Lombard, Yellow Egg, Imperial Gage, Blue Plum, Washington, Green Gage, Prince's Yellow Gage and Smith's Orleans.

Nearly every reply stated that the curculio was very troublesome, often destroying the whole crop.

The black-knot is mentioned by nearly two-thirds of the replies, and some of these complain that it has been very destructive.

CHERRIES.

The following cherries in the order given seem to be the favourite sorts, viz. :—Kentish, Mayduke, Black Tartarian, Black Eagle, Elton, Napoleon Bigarreau, Yellow Spanish, Elkhorn, Governor Wood and Early Purple.

No variety of cherry is really too tender in this section, but the tree will not thrive in wet, cold soils.

The Kentish, Black Tartarian, Mayduke, Black Eagle and Yellow Spanish, are thought to be the most favourable for market.

The tree is remarkably free from diseases or the attacks of insects, but the fruit is often stung by the curculio, and in some seasons rots badly, especially that of the sweet varieties. In damp and heavy soils is apt to "gum."

PEACHES, &c.

The peach tree grows well throughout this division in warm, dry, sandy or gravelly soil. The fruit is often killed by severe cold in the winter or by late spring frosts. The varieties that are most frequently mentioned are the Early and Late Crawford, Early York, Red Cheek Melocoton, Yellow Alberge, Old Mixon Free and Hale's Early.

The quince succeeds well here in well drained clayey soils, and bears good crops of fruit. It is somewhat liable to a blight similar to, if not identical with the fire-blight in the pear, and to the borer. The Orange variety is the one usually cultivated.

Apricots and nectarines require a warm dry soil, and are not very generally grown because of their great liability to be attacked by the curculio.

The strawberry grows well everywhere. The Wilson is almost unanimously designated as the best for market, the one standing next to it is the Triomphe de Gand.

The raspberry thrives well here, though some varieties require to be protected in winter to ensure a crop. They have not been as generally planted as their value deserves. The favourite is the Black Cap, on account of its hardiness. Of the other sorts Brinckle's Orange leads the list in public estimation, both for the garden and market; the Franconia and Philadelphia follow.

Some speak of the English gooseberries as doing very well, but the almost unanimous expression of preference is for Houghton's seedling, on account of its exemption from mildew. The English gooseberries are very subject to mildew, with but very few exceptions, and these arising from peculiarity of soil, the strong clay being best adapted. Downing's seedling is also not very subject to mildew.

But few venture on giving any remedy or preventive of the mildew. Two say that sulphur applied early, by dusting it over the foliage and frequently repeated during the summer, will do much in the way of alleviation; another says leached ashes spread under the plants; another recommends salt and lime applied in the same way; another a thick mulch of long manure, upon which is to be sprinkled thoroughly a weak brine; and another a coating of gravel.

Not much attention given to the cultivation of the blackberry. Some have found the Lawton or New Rochelle to succeed, but more report that it is too tender for the climate. The Kittatinny and Wilson's Early have been planted in a few instances, but it is too soon to speak of their merits.

All varieties of currants thrive well, but the sawfly worm has been very destructive during the past few years, so much so, that in many places the trees have been wholly killed. The favourite sorts are the Cherry Currant, White Grape and Black Naples.

GRAPES.

Every known variety of grape supposed to be suited to this climate, has been planted in these divisions. Nearly every one is sufficiently hardy to endure the climate with the exception of the European sorts, but there are some varieties, such as Allen's Hybrid, Isabella, &c., which are quite subject to mildew, and whenever a vine is badly affected by this parasite, the wood cannot ripen, and is killed by the winter. Indeed, the European sorts would many of them thrive well here, were it not for the mildew. Many vines have been reported to be too tender, merely because they had been ruined by the mildew in summer, and therefore died in winter.

Every variety that ripens its fruit before the Isabella may ordinarily be depended upon to ripen throughout these divisions. There are some localities where the Isabella frequently fails to ripen its fruit, but as a general thing the Isabella will ripen throughout the greater part, and those sorts that are earlier may safely be planted. The favourite sorts at present are evidently the Delaware, Concord, Isabella, Clinton, Hartford Prolific, Diana, Adirondac, Rebecca, Iona, Israella, Croveling, and Rogers Nos. 4 and 15. There are 300 acres of vineyard reported in the County of Kent, planted chiefly with Clinton and Concord. There are several also in the neighbourhood of London, probably of less extent, planted with Concord, Delaware, Hartford Prolific and Clinton, while many other varieties are being tested.

The vine is so far remarkably free from disease. Mildew is spoken of by a few, but most replies state that there is no disease. The only insects mentioned as doing much damage are the thrips and the steel-blue beetle. The former, it is stated, may be very considerably reduced by carrying a torch at night through the vineyard and shaking the vines, when myriads of them will fly into the blaze and be burned.

There is a wide variety of soil and surface within these divisions. Some parts are flat, low and swampy, others rolling, others gently undulating, and few with steep ridges and abrupt hill sides. In the low grounds the soil is quite apt to be heavy, and from the accumulation of water, cold and unsuitable for fruit trees and grape vines, though in the alluvial deposits where there is sufficient drainage to keep the water from becoming stagnant, the raspberry and strawberry will flourish well. But on the rolling grounds, especially those of a limestone character, apple, pear, plum, and grape vine, flourish in great health and vigour, and yield fruit of great beauty, and high flavour. The plum and pear do best where there is

considerable clay, the apple yields its highest flavoured and firmest fruit where there is some clay, while the cherry and peach thrive best in the warmest sandy or gravelly soils. The returns of temperature are very meagre, and of the amount of rain-fall yet more so, hence it is quite impossible to give any average over these counties, but it is believed that the average temperature is much warmer, and the average rain-fall is much less within these limits, than in any other part of Ontario.

Our Best Fruits.

THE RED ASTRACHAN APPLE.

This is our most valuable summer apple. It was brought to England from Sweden in 1816, and from thence it has been scattered abroad throughout the apple region of America. The fruit is exceedingly handsome, the colour being a rich, deep crimson, beautifully heightened by a pale white bloom spread over the surface. In size it is above medium, very smooth and fair, and the flesh is white, crisp and juicy, with a fine, rich, acid flavour. It ripens in the month of August, and may be used as a culinary fruit, but its true place is at the dessert. It sells readily in our markets, taking precedence of every other apple. The tree has proved to be exceedingly hardy, a vigorous grower, bearing young and very abundantly. In all parts of Canada this apple flourishes, and is, if anything, of better flavour in the colder than in the warmer districts, being more juicy and not so liable to become mealy as soon as ripe. It can be safely recommended to every planter as a variety that can hardly fail to give entire satisfaction.

THE DOYENNE D'ETE PEAR.

This is a small fruit, of very good quality, ripening quite early, usually about the end of July. In form it is roundish, slightly pear-shaped; the colour is a deep, rich yellow, frequently shaded with bright red, and covered with gray dots. The flesh is melting and juicy, quite sweet, and of a very pleasant flavour. We esteem it the best of the very early pears that thrive well in this climate. The tree is quite vigorous, bears fruit early and very abundantly, and should have a place in every choice collection.

SUGAR AND ACID IN CATAWBA GRAPE JUICE.—A test was made at Hammondsport, in Steuben county, N.Y., this fall, of the several varieties of grapes grown in that vicinity. Several samples of Catawba grapes were subjected to the test for sugar and acid, and the average of all the samples showed that there were two pounds of sugar in a gallon of juice, and 7 29-100 parts of acid in one thousand parts of juice. That is, the juice stood at about 90 degrees on Oechsle's scale, and the acid was about 7½ per thousandth.

Roses for Canada.

THE PROVENCE ROSE.

Many years ago, when the varieties of roses were much fewer than they now are, there grew in the garden, where many hours of childhood were passed, in playful dalliance with the best roses of the time, one large showy rose, exceedingly double, which was a great favourite with us all. It had been named, by some not very poetic mind, the Cabbage Rose; and now in maturer years, and with much more extended acquaintance with the Queen of Flowers, our riper judgment places the old Cabbage Rose among the very best we have, believing that however brilliant or select may be our collection, it will not be complete without the common Provence or Cabbage Rose. It seems to flourish in a great variety of soils, and to repay a thousandfold any care that may be bestowed upon it. In colour it is a clear rose, perfect in form, and of exquisite fragrance. The half-open buds are as beautiful as heart could wish, and the flowers are produced in great profusion. No one who has enough of love for the rose to care for it will ever regret the purchase of this old, well-tried and ever admired variety—a variety which, after the lapse of half a century, yet retains its place in the catalogues of the best rose-growers of England and America.

Winter Window Gardening.

Use, for this purpose, only such plants as have been prepared for winter blossoming by giving them two or three months' previous rest. It is altogether too much to expect that plants which have been blooming all summer should be covered with flowers in winter also. Give them plenty of room, so that the air and light may have free access. It is a great mistake to crowd them close together. There is more pleasure in a half-dozen well-grown plants than in any number of poor, weakly, drawn-up things. Keep the temperature as uniform as may be, letting it fall as daylight fades, so that the night temperature shall be from fifteen to twenty degrees cooler than during the day. It is very commonly the case that, for a part of the night at least, this is reversed, and by drawing the curtains and stirring the fire the temperature is increased. Plants should rest at night, which they cannot do unless the temperature be decreased. When the weather will admit of it, give the plants fresh air, but never let it blow in directly upon them. To sit in a draught is as bad for plants as for human beings. Dropping the top sash a little way, less or more, according to the warmth of the weather without, is the most convenient method. Keep them clean, removing the dust from the leaves by a gentle shower-bath of tepid water from a fine-rosed watering-pot, and by gathering all the dead leaves and all the insects that appear.

Fairy Rings.

A correspondent sends us the following account of one of these curious circles of greensward, commonly known as "fairy rings," of which he desires an explanation. He remarks that:

"The vulgar belief in England is that they are caused by fairies dancing round the circle Some think they are the consequence of lightning; others say they are produced by ants.

"The lawn is now (Dec. 9, 1870) a faded or yellowish green; the ring or hoop is of a grassy green, several shades darker than the lawn, as if it had been manured. The inner diameter is five and a quarter feet, the width of ring or hoop about eighteen inches. The ground is exposed to the sun on three sides, but sheltered at the north by an oak, which is, however, not over it. No tree has been removed from the spot, but it has been part of the lawn for years. No cows or other animals have been allowed on the lawn. There are no marks of ants. No manure heap was made on the spot, and even had there been one, it would not have left an open spot in the centre. The whole lawn was equally covered with a top dressing last autumn, which was raked off in the spring.

"A gardener could not plant a more perfect circle. They are always about the same size."

The explanation of these curious circles is that they are caused by the presence of certain species of fungi, of which the champignon is an example, whose natural habit is to grow in this manner. That is, the original germ sends out concentric filaments under ground, and the outer ends of these filaments become a bed of fungi, which from their manner of production are arranged in this regular ring. They fertilize the grass, and give to it in that particular circle a peculiar verdure. Our correspondent is mistaken in supposing that they are always of the same size.

The Japan Lilies.

These have been found on trial to endure our winters even better than our native lilies, and to flourish in a greater variety of soils. They surpass all others in beauty, and are most deliciously fragrant.

To grow these beautiful flowers in perfection the ground should be dug fully eighteen inches deep, and enriched with surface soil from the woods that has been well mixed with plenty of coarse sand and old—not less than two years old—well rotted manure. The bulbs should be set five inches below the surface, and remain for several years without being disturbed.

The white Japan Lily is pure white, without any spots, and is very healthy.

The red Japan Lily is really the most beautiful variety, marked with deep red spots, and suffused with a rich roseate hue.

There is a faintly spotted variety, known as *punctatum*, which is very delicately coloured, but the bulbs seem not to possess as healthy a constitution as the other varieties.

We believe the variety known under the name of *roseum* is nothing more nor less than the red Japan Lily, which varies in its shades of colour very considerably, and although often priced higher in the nurserymen's catalogues than the red (*rubrum*), not worth any more in reality. They are now so low in price as to be within the reach of every one, and we hope very soon to see them in every garden in the country.

Bark-splitting.

To the Editor.

SIR,—"Observer's" plan for protecting fruit trees from injury by mice is an excellent one; but as regards the splitting of the bark, I cannot see it in the same light that "Observer" does. He seems to think the splitting is caused by water collecting in a small pool, and freezing around the roots. Allow me to give my views and experience as to the cause :—

After conversing with several of mymost painstaking neighbours on the subject, and carefully examining many trees, I have come to the conclusion that the splitting is caused by hard freezing at night, and the heat of the sun through the middle of the day. In the first place, I ask if any person has had trees injured either on the east, north, or west side, by the splitting of the bark? I find that in nearly every instance the bark is split on the south or south-west, say from twelve to two o'clock, when the sun is at its greatest heat, and takes the frost out of the bark, in a narrow strip up the body of the tree, and the frequent freezing and thawing through the latter part of February and through the month of March, in my opinion, is the cause of the bark splitting. Trees that are inclined to lean to the north are the most in danger, as they have but little top on the south to protect the sun from the body. Trees inclined south, with low bushy tops, are not in much danger. Young, tender trees are more liable to split than older ones. The bark is more tender and glossy, and the sun has more power on them than on older trees. We have one tree in our orchard that met with the misfortune several years ago, of having its bark split up the body, and in several instances the branches, where they lay fair for the sun, had cracks in their bark a foot or more long. I was on the look-out for such things, and noticed it soon after the bark was split, and applied some grafting wax both to the body and branches. The tree is now as sound and thrifty as though nothing had happened to it. The best preventive that I know of is to shade trees most in danger. Say take two strips of board six or eight inches wide, with one straight edge, nail the flat of one to the edge of the other, which will form a half square. Set them up on the south side of the trees, and let them remain until warm weather sets in; then they can be removed and all will be safe. Any other substitute for a shade will answer every purpose.

Tramping or packing the snow down around fruit trees several times through the winter is a great preventive against mice barking trees, especially the outside row, where the snow is apt to drift. Soft damp days are the best, as the snow will pack hard, and the mice cannot work through or under it if properly done. It will also have the tendency to make the trees start later in the spring, and throw the blossoming out of the way of the late frost that is so apt to injure the fruit.

A LOVER OF FRUIT.

December, 1870.

Gen. Grant Tomato.

We have been very much pleased with this variety of tomato, and believe it will give very general satisfaction. It matures its fruit, which is smooth, solid, and fine flavoured, early. A writer in the *Rural New Yorker* says that last spring he sowed some seeds of the General Grant tomato in a hotbed, transplanted them to the open ground in the latter part of May; when they were a foot high he commenced tying them up to stakes six feet high, and after the first blossoms set cut off all the laterals, leaving only the main stem to grow. Then he applied liquid manure, which he obtained by setting up a leach of horse manure. His first ripe tomatoes were gathered the 24th of July, and plenty of them. The vines were covered with beautiful smooth tomatoes, and continued to bear until the frost killed them.

To Prevent Mice from Gnawing Trees.

To the Editor.

SIR,—A good many communications have appeared in your paper, suggesting several ways in which to keep mice from gnawing trees. I will give you my plan :—

I use felt roofing, or such as is put on flat roofs. Take one end of a roll of felt, lay it on a board and draw a knife across it, the width you require to go round the trees; then divide crossways, and you have two pieces, and so on to the amount required. Two or three hundred pieces can be carried in a basket while putting on. One roll will do from four to five hundred trees, according to size, and the same amount can be cut in one hour.

The material is cheap, and durable if taken care of. If the felt is very moist with the tar, tie it loosely round, else it might do injury. It will soon harden, and the strings can be cut away, when the felt will remain if wanted, and loosen with the expansion of the tree, and thus be of service forseveral years. It might also prevent injurious results from insects ascending the trees in summer. In this way I have gone over an orchard of nearly one thousand trees, and when spring comes, I hope to feel satisfied with my labour, as considerable damage was done last winter.

It is not necessary to purchase first-class material; stuff that is somewhat damaged will do quite as well. The greater part of mine cost me nothing, having been taken off an imperfectly laid roof.

J. McL.

Owen Sound, Nov., 1870.

Grape Culture.

To the Editor.

SIR,—I am an amateur grape grower. I have two hundred vines planted, mostly Concord; so far they have been growing wild, but next year they will require pruning and trellising.

Now, I do not want to buy my experience in grape raising as dear as I have in some other things that I have tried—bee keeping for example. I want the experience of others, and will spare no expense to get it, if it is worth having.

Andrew Fuller on the Grape, I believe, is considered the best authority in America. I have his work; and his system of pruning, trellising and training appears to be sensible, practical, and easy, and one that I would like to follow; but I wish to begin right, for whatever system we adopt must be followed up, as if not it will be a loss to the grower.

Some of our Canadian grape growers say, prune and pinch; others say, no, let the vine grow. Some adopt the arbour system of trellis, others approve of the straight trellis; some say, run the wires horizontally; Mr. Fuller says, run them perpendicularly, and I think his reasons are good for doing so.

Now, the question I wish to ask is this: Shall I, as a new beginner, take Mr. Fuller and follow his system right through to the letter, or take my chance, and do as Tom, Dick or Harry advises, or as my own ignorance may dictate? An answer to the above may be interesting to others besides,

A. C. ATTWOOD,
Vanneck P.O.

THE BERBERRY AS A HEDGE PLANT.—The berberry is a pleasing ornamental shrub, and answers well as a fancy hedge or screen; the bright yellow flowers in spring, and the scarlet or purple fruit in fall, which often hangs on nearly or quite all winter, producing a very pretty effect. A deep, rich loam suits it best, but it will grow well in any dry soil.

The Aspen.

Every country place should have that very coquette among trees, the aspen. It seems never to sleep. Its twingling fingers are playing in the air at some arch fantasy almost without pause. If you sit at a window with a book, it will wink, and blink, and beckon, and coax, till you can not help speaking to it. That must be a still day that does not see the aspen quiver. A single leaf will sometimes begin to wag, and not another on the whole tree will move. Sometimes a hidden breath will catch at a lower branch, then shifting, will leave these still, while it shakes the topmost twig. Though the air may move so gently that your cheek does not feel it, this sensitive tree will seem all of a shudder, and turn its leaves upward as with shuddering chill. It is the daintiest fairy of all the trees. I have seen such fair sprites, too, in human form. But one does not get off so easily if he takes too much sport with them. The aspen leaf makes no wounds. Its frolics spin no silken threads which one cannot follow and will not break.—*Henry Ward Beecher.*

Like all things mortal it has its failures and its disappointments, and there are some things hard to understand. But it is never without its rewards, and, perhaps, if there were nothing but successful cultivation, the aggregate enjoyment would be less. It is better for the occasional shadows that come over the scene. The discipline, too, is most salutary. It tries our patience and it tries our faith. But even in the worst of seasons, there is far more to reward and encourage than to dishearten and disappoint. There is no day of the year without something to afford tranquil pleasure to the cultivator of flowers, something on which the mind may rest—rest with profit and delight.—*Cornhill Magazine*

Gardening in the Evening of Life.

I would recommend to every man, especially in the autumn of his life, to take to gardening, if he has not already experienced its pleasures. Of all occupations in the world, it is the one which best combines repose and activity. It is rest in work and work in rest. It is not idleness; it is not stagnation; and yet it is perfect quietude.

The Kilmarnock Willow.

We give our readers an excellent engraving of this very handsome and very popular drooping tree. So perfect is the representation that no description is needed. The tree has been planted in nearly every part of the Province, and we believe it has been quite hardy everywhere. Its graceful, pendant habit makes it a very ornamental tree, when planted around our dwellings. It is grown by grafting it at the desired height upon the black willow stock, from which point the branches grow downwards.

The winter meeting of the Fruit Growers' Association of Ontario will be held in the Court House, in the City of Hamilton, on Tuesday, the seventh of February, 1871, commencing at 10 o'clock, a.m., and continuing throughout the evening.

The Profits of Grape Culture.

We find in *Hearth and Home* an account of the cost of growing and selling the grapes from 2 73-100 acres of vineyard. We condense the account for the benefit of those of our readers who are interested in grape culture. The cultivator puts down the cost of cultivation from the time of gathering the grapes the previous autumn to the commencement of picking them this year at $233 51. This includes cultivating, hoeing and pruning, and 800 pounds of ammoniated superphosphate of lime applied to parts of the vineyard. The cost of picking, packing, and marketing, including freight and commissions and wear and tear of crates, he gives at $227 88, making total cost for the year $461 39. His crop of grapes was 14,500 lbs., for which he received $1,096 76, so that he received $635 37 profits. In this he does not make any charge for rent of land nor taxes, nor for taking the grapes from the vineyard to the railway station. His vineyard contained 2,000 vines in bearing and 250 younger vines. They are mostly Concords, a few, about one-tenth, Delawares, and some Hartford Prolific, Diana, &c. His first Delawares sold at 20c. per pound, his first Concords at 10c., his Delawares falling to 10c. and his Concords to 6c. before the close of the season. He had about 12,000 pounds of Concords and 1,200 pounds of Delawares, the remainder being divided by some eight or nine other sorts. By this it would seem that it cost him about 3 1-5 cents to grow and market a pound of grapes; that the average gross receipts were about

7½ cents per pound, and the net proceeds about 4 1-3 cents per pound; or $232 per acre.

These grapes were marketed in the city of New York. We wish some of our readers who marketed their grapes here would give us the results. We are frequently asked if grape-growing will pay, and only these who have had experience can satisfactorily answer the inquiry.

Keeping Cabbage in Winter.

Three facts need be borne in mind in putting cabbage away for winter, namely:

1. Repeated freezing and thawing will cause them to rot.

2. Excess of moisture or of warmth will also cause them to rot.

3. A dry air, such as is found in most cellars, will abstract too much moisture from the leaves, injure the flavour of the cabbage, causing some of the heads to wilt and the harder heads to waste.

The most convenient way in this climate is to open a furrow in some well drained place, deep enough to receive the heads, place a conple of rails at the bottom so that any surplus water may be readily carried off; place the heads compactly together on the rails, with the roots up, and then cover with soil, ridging it up just enough to cover the roots an inch or so with soil.

Low-headed Standard Pear Trees.

The advantages obtained by heading standard pear trees low are the following:—

Protection to the body of the tree.

Shading the ground and keeping it cool.

Light is admitted into the centre of the tree.

The fruit colours better and grows larger.

The trees come earlier into bearing.

Closer planting can be practised, and thus the trees protect each other.

Pruning and thinning out of fruit can be more conveniently and expeditiously done.

MR. QUINCE ON THE BEURRE D'ANJOU PEAR.—The Beurre D'Anjou is only a moderate growing tree, and with us has done better when planted as a standard. This is the case wherever I have seen this variety growing. It is only when a few trees are wanted for family use in the garden that, on account of its coming sooner into bearing, the dwarf will answer the purpose better than the standard.

GRAFTING LARGE TREES.—In grafting large trees commence at the top, and leave the side branches for another year. The higher branches draw the sap more than the lower branches, and if first grafted the result is more likely to be successful. Never graft all the branches in one season. It is dangerous to the health of the tree to make the leaves so disproportionate to the roots.

Poetry.

The Two Armies.

BY OLIVER WENDELL HOLMES.

As life's unending column pours,
Two marshaled hosts are seen—
Two armies on the trampled shores
That death flows black between.

One marches to the drum-beat's roll,
And wide-mouthed clarion's bray,
And bears upon a crimson scroll,
"Our glory is to slay."

One moves in silence by the stream,
With sad yet watchful eyes;
Calm as the patient planet's gleam,
That walks the clouded skies

Along the front no sabres shine,
No blood-red pennons wave;
Its banner bears the single line,
"Our duty is to save."

For those no deathbed's lingering shades;
At honour's trumpet call,
With knitted brow and lifted blade,
In glory's arms they fall.

For these no clashing falchions bright,
No stirring battle cry;
The bloodless stabber calls by night.
Each answers, "Here am I."

For those the sculptured laureled bust,
The builder's marble piles;
The anthems pealing o'er their dust,
Through long cathedral aisles.

For these the blossom-sprinkled turf
That floods the lonely graves,
When spring rolls in her sea-green surf,
In flowery, foaming waves.

Two paths lead upward from below,
And angels wait above,
Who count each burning life-drop's flow,
Each falling tear of love.

Though from the hero's bleeding breast
Her pulses Freedom drew,
Though the white lilies in her crest
Sprang from the scarlet dew—

While valour's haughty champions wait
Till all their scars are shown,
Love walks unchallenged through the gate,
To sit beside the throne.

Under the Leaves

Oft have I walked these woodland paths
In sadness, not foreknowing
That underneath the withered leaves
The flowers of spring were growing.

To-day the winds have swept away
These wrecks of autumn's splendour;
And here the fair arbutus flowers
Are springing fresh and tender.

O perfect flowers with lips of bloom!
Surpassing in their beauty
The pearly tint of ocean shells,
To teach me faith and duty.

Walk life's dark way, ye seem to say,
In hope and faith, foreknowing
That when man sees but withered leaves,
God sees the fair flowers growing.

Apiary.

Bee-keeping—Review of the Past Season.

It will be remembered that 1869 was one of the poorest seasons we have known in Canada for many years, so much so that during the winter, over half the bees in the country perished for want of stores; hence the spring of 1870 opened with the number of stocks greatly reduced, and many of them in nearly a starving condition. But as 1869 was one of the poorest, so, on the other hand, 1870 has been one of the best honey seasons for several years. The result is, that bee-keepers find their loss made up in numbers and their stocks in fine condition, while nearly all have taken some surplus honey.

There was, however, in many sections, a drawback experienced in the Spring. The dry weather causing the honey harvest to fail, soon after the drones made their appearance, they were in many cases killed off by the workers, though this did not affect the gathering of honey, as drones do not gather honey; yet it retarded swarming, as the rearing of queens will not commence to any considerable extent when such is the case, and swarming is delayed until another set of drones are sure to make their appearance, the queen always laying drone eggs again as soon as the honey harvest improves. In all sections where this was the case, more or less swarms came off too late to gather sufficient stores, except in cases where they were put into hives containing old or empty combs. Fortunately for such swarms, there were a large number of such hives this season, owing to the great loss of bees last winter. It is always to be regretted by every bee-keeper when anything occurs to retard swarming in this country, as there is no little Fall pasturage. In the section of country where I reside we have nothing growing from which bees can gather anything worth mentioning after the end of August. If they hold their own during September we are quite satisfied; but in sections where buckwheat is grown it is different. The amount of honey gathered this season, I believe, is greater than for several years. The amount taken from single stocks far exceeds anything ever before recorded in Canada. This, however, is partly owing to the introduction of the honey extractor, as by using it more honey may be obtained from a stock than would be stored in boxes under the most favourable circumstances. In order to use them, however, bee-keepers must use frame hives, and become accustomed to handling their bees.

The demand for Italian bees is fully equal to any previous year, and the reputation they have gained for being better workers is generally well sustained. Many are Italianizing their entire stock, and will keep no others, while others are satisfied with simply crossing. And it certainly is a great improvement to the stock to cross them with Italians, for the hybrids are fully equal to the pure, as honey gatherers.

The demand for frame hives is gradually on the increase, and several new patterns—new in some features of their construction—have been introduced; and one is led to believe that, ere long, the market will be flooded here, as in the United States, with a "thousand and one" hives, many of which are not worth the expense of making. As a whole, the interest taken in bee-culture has been as fully maintained as in any preceding year, and the prospects are fair, as the Fall has been exceedingly mild, that the season of 1871 will open under very favourable circumstances.

Though we have had some drawbacks in this country not experienced in many of the United States, yet we are holding our own with our American bee-keeping brothers very well; and though we may not as bee-keepers make quite so loud a buzzing, yet we gather about as much honey. True, they have several journals devoted principally to the interests of bee-culture (of which the *American Bee Journal* is prince), and bee-keepers' associations are organized in several of the States; yet, in point of scientific knowledge, we are as a community of bee-keepers not a whit behind them. We have our yearly meetings known as the "Ontario Bee-keepers' Association," which is held at the time and place of the Provincial Fair. Though we have no journal devoted entirely to the interests of bee culture in the Dominion, yet the CANADA FARMER, has an apiary department, and several of our leading agricultural and secular papers devote a column to the interests of bee culture. May we not hope to see the day when Canada shall be *the* "land that flows with milk and honey?"

J. H. THOMAS.

Brooklin, Ont.

Bee-hives.

To the Editor.

SIR,—In answer to the note by the editor at the end of my article in the November number of the CANADA FARMER, I must say that if the reporter had made proper enquiry as to the use of certain parts of the hive, he would have been able to give a more intelligent description of it.

The wire screen is to "keep the moth out" when you ventilate, the bottom board being withdrawn altogether. A person residing in the township of Clarke did so with the hive in question during the extreme heat of last season, and obtained thirty pounds of surplus honey.

"Clippings" are wax, not dirt. I have never come in contact with a hive so constructed that the frames formed the inner wall, and I experienced no difficulty in obtaining a patent on such a hive.

Though "rejected as inconvenient by most bee-keepers," I can only say that the New Dominion Bee-hive has met with the largest sale of any hive yet offered in Canada the first year of its patent. It obtained a first prize at the Exhibition at Montreal, over the Thomas hive; also in the county of Northumberland.

B. LOSEE.

Cobourg, Ont.

Superstition among Bee-keepers.

It is strange how tenaciously we cling to old ideas. The teachings of early days—even the sayings of our grandfathers and grandmothers—have become as it were incorporated into our very selves. No matter if ever so superstitious, we cling to them, loth to give them up. Perhaps in nothing do we see more of this than in the common ideas respecting the nature and habits of the honey bee.

So much is this the case that even among bee-keepers of considerable scientific culture, there are still held wrong ideas, detrimental to proper management. Doubtless we have escaped from the dense fog of superstition in which Virgil wrote, when he tells us that after killing a steer, it was left in the sun, until

"The tainted blood, th this close prison pent,
Begins to boil, and through the bones ferment,
Then wondrous to behold, new creatures rise,
A moving mass at first, and short of thighs.
Till shooting out with legs, and imped with wings,
The grubs proceed to bees with pointed stings."

Yet there is much of superstition still clinging to us. Even in far more modern days the ideas so poetically expressed by Virgil were entertained in England by one who was called the "great husbandman of Cornwall, old Mr. Carew of Anthony.' Here are his directions:—"Take a calf, or rather a sturk (steer) of a year old, about the latter end of April; bury it eight or ten days till it begin to putrefy and corrupt; then take it forth of the earth, and opening it, lay it under some hedge or wall, where it may be most subject to the sun, by the heat whereof it will—a great part of it—turn into maggots, which, without any other care, will live upon the remainder of the corruption. After a while, *when they begin to have wings*, the whole putrefied carcass should be carried to a place prepared, where the hives stand ready, to which, being perfumed with honey and sweet herbs, the maggots, after they have received their wings, will resort."—[Bees, their Habits and Treatment, by the Rev. J. G. Wood].

But we need not go back to the days of old Mr. Carew, for even in our own Canada, with all its boasted light and knowledge, and even in our immediate vicinity, not five years since, I heard an old lady remarking that "the drones are bees that have lost their stings and grown fat." There are those, too, among us, who still hold that her majesty the queen bee is a "he," and they continue to proclaim her ladyship a "King," also believing that the drones are females, and lay all the eggs. By the experienced bee-man it will be seen at once, how a bee-keeper holding this long-exploded theory must fail in his management of bees. But among us there are other equally gross errors, such as that drones are required to nurse the brood; that young bees ordinarily elaborate wax, construct the comb, nurse the brood, and do all the internal work of the hive; that a certain class of bees are appointed to attend the queen, constituting the "queen's train;" that only certain bees gather honey; that young bees never gather honey till three weeks old; that another class are appointed as guard, and are relieved in regular order and at regular hours; that old bees do not build comb.

These are all errors—relics of superstition, if I may so speak—and whoever adheres to them is still in the fog. If drones were required to nurse the brood and keep it warm, as is thought by some, how is it that they exist only during the hottest weather, when, frequently, nearly all the bees require to leave the brood in order to reduce the temperature? In early spring, when more heat is required in the hive than is generated by the bees, there are no drones. The truth is that drones are the male bees, and when the swarming season is past, being of no further use, they are destroyed.

That young bees only elaborate wax is another great error. Every worker bee may elaborate wax, construct comb, gather honey, nurse the brood, attend the queen, stand guard, or lie idle, as the case may be. In a perfect colony there are sufficient bees to do all the work required, and some to spare; and apparently when there is anything to do there are bees ready to do it voluntarily. And, when large numbers of bees are lying out idle on the hive, if removed and given a queen they may be made, so to speak, to adapt themselves to the circumstances and go to work, performing all the different kinds of labour in the hive with equal facility with those that were labouring when they were removed.

As soon as we are thoroughly rid of all the false ideas relative to the honey bee, we shall have better management, and bee culture will be more interesting and remunerative.

J. H. THOMAS.

Letter from Texas.

ITALIAN BEES WANTED.

MR. PRINTER:—I hear you print a bee paper, and I want you to send me one to look at, to see if I like it. Cousin Upson was to see us when he came out prospectin', and he told us about a new sort of imported bees, with striped backs and harmless queen stings that never hurts nobody, and can be handled, like well-riddled rye, without gloves, in the

hottest weather. Mr. Printer, can't you put me in the way of getting a swarm? I would like to have them soon. Can't they be sent by telegraph, so as to come before Christmas? Swarming time begins here soon after New Year, when the drones have got over their holiday frolics. How much will they cost, though? If they are very dear I could not afford the expense till after the next cotton crop is made. They say a queen sells for five or six dollars! Just think of that! A little insect about an inch long selling at the price of a yearling colt! If the workers sell in proportion, won't they come high, as cousin Zeke reckons it out? Or if you put them down at even a picayune apiece, and there are thirty thousand in a hive, only think what a decent hive would come to, by the rule of three! Then there's the freight too, if they come by telegraph, for the ticking clerk always figures that out high; and so I am afraid that, if sent by that line, they might in the end cost more than they would come to. Aunt Dinah says she has read somewhere in the *Penny Whistle Weekly*, (which she gets every now and then at the grocer's around some articles she buys,) that they now send these bees, or some kind of bees, by mail. That, I think, must be a good joke! Why, you might as well send a basketful of hornets by express. Phew, I'd like to stand at a safe distance away and see our soberfaced, steady old postmaster open the bag when they arrived! Wouldn't he make tracks in a hurry, and feel worser nor if he had a dozen big fleas in his ear? No, no, that's a little too tough a yarn to be swallowed by any but a greenhorn, though it is in print. But have those bees I will, sooner or later; and if they don't come quite as dear as cousin Zeke reckons it out, I'll get you, Mr. Printer, to have 'em sent by rail and steam even if they don't come till after Christmas. I'd have them sent by express, but that moves as slow in these parts as our old ox team used to do in old Middlesex, on Saturday nights, when we had hitched up to go sparking. Don't forget to tell the man who sells and sends them, to be sure to give them food enough for such a long jaunt, as the poor things mustn't be let starve on the way. Tell him, too, to pack them well and hurry them forward—"*with speed and care, right side up!*".

Before I close, Mr. Printer, I want to say further, that when cousin Upson was here he told us there was great fuss just now away up in the old States, about some wonderful improvements in bee-keeping, which he said they call "scientific beeculture." Now what is that? How is it made? How big is it? Is it patented? Does it go by machinery? Is it hard to learn how to work it? Or must you go to a sort of school or college to study how to manage it, till you get the hang of it gradually? Couldn't an old man learn to fix it up, without leaving home?

MILES HADAWAY, 3d.

Palo Pinto, Texas, Nov. 3, 1870.

—*Am. Bee Journal.*

Household.

Packing Pork.

We condense the following directions on this subject from the *Utica Herald*. To prevent meat spoiling in the process of curing, it is absolutely necessary that it should not be allowed to *freeze* before salting. Pig killing is often done in very cold weather, when the meat quickly freezes on the outside, before all the animal heat has escaped from the thicker and deeper portions of the body. Such meat is very apt to become tainted. This matter being first attended to and the carcass taken under cover before it has frozen, it is next cut into convenient pieces for packing.

The barral must, of course, be perfectly sweet, and so strong that there will be no danger of leakage. This being insured, begin the packing, by covering the bottom of the cask with an inch and a half of coarse salt. This is to keep the pork from coming in contact with the cask, and thus being exposed to the air and the almost certainty of tainting. Then put in the layers of pork, one upon the other, and between the layers a heavy sprinkling of fine salt. Cover the last layer with one-half inch of solar salt. Let the barrel stand in this condition three or four days, so that the salt shall work into the meat, and form a sort of brine with the water of the meat itself. Afterwards pour on brine enough to just cover the meat, but not to cover the top layer of salt. Pork packed in this way will keep always.

When the pork is being used, the brine should be dipped out as the pork lowers in the barrel, *so that a layer of salt may be on top.* If the brine is allowed to cover the salt, it will have particles of animal matter floating upon it which, by thus coming in contact with the air, will become tainted, and will communicate this taint to the body of the pork below by means of the brine. A great deal of pork is lost in this way which could have been saved sweet and good if the brine had only been lowered with the pork. None but the best kinds of salt should be used. They will cost but a trifle more, and are often the means of saving an entire barrel of pork.

Domestic Recipes

CHRISTMAS OR NEW YEAR'S CAKE.—Five pounds flour, (prepared,) three and a half of granulated sugar, three of good butter, one dozen eggs, half a pint of wine, half a pint of brandy, one ounce of nutmegs, one ounce each of cinnamon, cloves and mace, one pound of candied citron, two of currants, two of stoned raisins, half a pint of yeast. Make a sponge of the yeast, and set it in the middle of the flour, cover it and let it rise; when risen, add all the other ingredients—previously working the butter and sugar to a cream—bake in one large shallow pan after raising a second time, and when done frost, and trim it with a holly wreath.

COTTAGE PLUM PUDDING.—A pound and a half of flour, four or five eggs, and a pinch of salt, a little nutmeg, one pound of raisins, half a pound of currants, sugar to taste and a little milk. Make a thick batter with five well beaten eggs, a pound and a half of flour, and a sufficient quantity of milk. Then add the currants, washed and picked, the raisins stoned, a little nutmeg, and sugar to taste. Mix all well together, and boil it in a basin or floured cloth for quite five hours. The peel of a lemon grated, and a few pieces of citron out thin may be added.

BAKED SOUP.—Take one pound of lean beef, chop rather fine, place in an earthen pot which will hold five quarts of liquid.—Slice and add two onions, two carrots, two tablespoons of rice well washed, a pint of whole or split peas, a teaspoon of black pepper, and a tablespoon of salt; pour over all one gallon of cold water; put the lid of the jar on it, or a close fitting plate, and bake four hours. This is a nice, wholesome dish.

TO KEEP STOVES BRIGHT.—Make a weak alum water, and mix your British lustre with it; put two spoonsful to a gill of alum water; let the stove be cold, and brush it with the mixture, then take a dry brush and lustre, and rub the stave till it is dry. Should any part of the polish become dry as to look gray, moisten it with a wet brush, and proceed as before. By two applications a year, it can be kept as bright as a coach body.

APPLE SNOW.—Put twelve good tart apples in cold water, and set them over the fire; when soft, drain the water, strip the skins off the apples, core them, and lay them in a deep dish. Beat the whites of twelve eggs to a stiff froth; put half a pound of finely powdered white sugar to the apples; beat them to a stiff froth, and add the beaten eggs. Beat the whole to a stiff snow; then turn into a desert dish.

ROAST GOOSE.—The *Hearth and Home* says a goose less than a year old can be cooked so as to taste almost as well as turkey. When the animal is nearly ready to be killed, put vinegar into its food, and the day before its neck is brought to the block, pour a spoonful of vinegar down its throat. It has the effect—the reason of which is not well understood—of making the flesh tender. Boil slowly for about two hours, if the goose is old, taking care to skim away the oil. One hour for a young goose. Then stuff, and roast, or bake, like a turkey, using a little good vinegar with the basting.

CHRISTMAS PLUM PUDDING.—One pound and a half of raisins, half a pound of currants, three quarters of a pound of bread crumbs, half a pound of flour, three quarters of a pound of beef suet, nine eggs, one wineglassful of brandy, half a pound or citron and orange peel, half a nutmeg, and a little ground ginger. Chop the suet as fine as possible, and mix it with the breadcrumbs and flour, add the currants washed and dried, the citron and orange peel cut into thin slices, and the raisins stoned and divided. Mix it all well together with the grated nutmeg and ginger, then stir in nine eggs well beaten, and the brandy, and again mix it thoroughly together that every ingredient may be moistened; put it into a buttered mould, tie it over tightly, and boil it for six hours. This pudding may be made a week before using, boiled in a cloth, and hung up in a dry place, and when required put into a saucepan of boiling water and boiled for two hours or two hours and a half, then turned out and served with sauce as above.

To Cook Vegetables.

It is often observed that a meal from vegetables is not satisfying. I have found it frequently happen that the persons who thus objected, did not know even how to boil a vegetable. The rule is simple, and should never be forgotten. Every kind of vegetable intended to be served whole should, when put to boil, be placed at once in boiling water; and this applies especially to potatoes and vegetables from which the outer cover has been removed. Now it often happens that potatoes, etc., are, to save time, placed in cold water and left to boil gradually. It is just this which allows the nutritious matter to escape and renders the meal unsatisfying. When, on the contrary, the water boils from the moment the vegetable is immersed in it, the albumen is partially coagulated near the surface, and serves to retain the virtue of the vegetable. The reverse is, of course, the rule for making soup, or any dish from which the water will not be drained. By placing the vegetables in cold water the albumen is slowly dissolved, and actually mixes with the water—a process most necessary for the production of nutritious soup.

A Home-Made Earth Closet.

J. B. Lyman, agricultural editor of the N. Y. *Tribune*, tells how he made an earth closet:

I built a house lately, and managed matters in this way: I bought two camp kettles, sheet iron cylinders with a bottom and a bail; they cost a dollar each, and measure perhaps 14 inches across the top. The seat has hinges, and the kettles stand on masonry, so the seat when down touches the rims. The bail is long enough to fall over the rim, and touches the side half-way down. The shell of a box-turtle serves as a scoop. Once a week the box is filled with dry garden earth or with fine clay; once a week it is necessary to lift the seat and take out the kettles and add the contents to the manure pile, a chore at consumes five minutes. Before the ket-th tles were used they received a thorough coat of coal tar thickened with slate-flour.

We like the system very much. It allows a closet to stand where with any of the old methods it would breed disease. It is cheap and simple; it eaves all the night soil; we have no smell, for if any is perceived, two shovels of earth will quench it. It makes a light weekly chore of what would otherwise become an odious semi-annual job. In the hottest weather we scatter a little quicklime or lime with carbolic acid. Lime alone will quench the ill odor of the fluids of sewage, and the dry earth muffles the other. In freezing weather sifted coal ash is a convenient substitute for soil. Any earth that is not sandy will answer; but it should be dry.

Agricultural Intelligence.

Agricultural Association.

The Council of the Provincial Agricultural and Arts Association met on the 8th Dec. in the Agricultural Hall. The following gentlemen were present:—Hon. D. Christie, President; Hon. James Skead; Messrs. James Young, M.P., Rykert, M.P.P., Cowan, Graham, Macdonald, White, Shipley, Gibbons, Wilson, Walton, Farley; Rev. Mr. Burnett, and Prof. Buckland.

Mr. Young brought up the question of examining the public accounts before they were adopted, and on the motion of Hon. James Skead, seconded by Mr. White, they were referred to a special committee, consisting of Messrs. Burnett, Macdonald, and Cowan. A number of communications respecting the award of prizes were taken up and disposed of. The Council having at a previous meeting decided upon publishing a volume of transactions covering the last seven years, the secretary was instructed to advertise for tenders for the printing of the volume, and a committee, consisting of Messrs. Rykert, Young, and the President, appointed to supervise the publication. The printing of diplomas was referred to the same committee. A communication was received from the President of the Young Men's Association, asking if the Council would sell the Agricultural Hall; if so, for how much? On motion, it was decided to reply that the hall was not in the market.

IRREGULAR VOTING.

Hon. Mr. SKEAD presented a report from the committee appointed at a previous meeting to inquire into alleged irregular voting at the general meeting of the Association. The ollowing is the report:—

To the Council of the Agricultural and Arts Association:

The Committee appointed under the resolution of the 8th of October last, to investigate and report upon the circumstances attending the vote taken at the meeting of the Directors of the Association on the 6th Oct., in reference to the appointment of a place for holding the next exhibition of the Association, beg leave to report—

That having carefully examined the minutes of the meeting of the Directors on the occasion in question, as recorded by your Secretary, and availed itself of all the means of information within its reach, they find that there were in all 128 votes recorded. Of these, several were by individuals who voted as delegates or appointees of different societies, and claiming to vote as such in the absence of their President or Vice-President, but exhibited no satisfactory evidence of such appointment. That several individuals of such alleged appointees assumed to vote without the authority of the society which they pretended to represent. That several of the votes so given and recorded were spurious, and given by parties not legally qualified to vote as Directors of the Association, and therefore that the result obtained by the voting as aforesaid, was not a lawful and just decision of the question then submitted. That your Committee, with the view of giving additional perspicuity to this report, annex hereto and embody herewith a schedule, exhibiting in detail a statement of the votes recorded and the particular facts as found by your Committee affecting their validity. That your Committee would respectfully urge upon the Council the expediency of passing a by-law regulating the voting upon similar occasions, and prescribing the precise form of credentials which a voter shall be required to produce before recording his vote, so as to ensure more regularity in these particulars for the future. Your Committee further respectfully suggest that your Secretary be admonished to keep the books containing the minutes of the different meetings of the Association with scrupulous exactitude, and that he is to be held responsible that the same are not tampered with or defaced. That your Committee, adverting to the schedule appended hereto, would draw the attention of the Council to the fact of there being forty-two votes recorded at the said meeting as having been given by parties who have produced no credentials whatever of qualification, the Committee in consequence having no ready means of estimating the validity of such votes; and it is further noticed by your Committee that even in those cases where credentials have been produced by the voters, such credentials for the most part afford no evidence of the parties therein named having been appointed as delegates by their respective societies according to the Statute—such credentials only going to show that the parties therein named had been nominated or appointed by particular members or office-holders of their respective societies. Also in reference to certain Horticultural and Mechanics' Institute Societies, represented at the said meeting, your Committee are uninformed as to whether the requisite formalities have been complied with in order to entitle them to such representation and report in the premises, assuming all such societies to have been legally constituted.

All of which is respectfully submitted.

J. SKEAD, Chairman.
S. WHITE,
JOHN WALTON,
ANDREW WILSON,
JAMES J. FARLEY.

Mr. EYKERT said the Act did not provide that presidents or vice-presidents must bring certificates.

Prof. BUCKLAND remarked that a blank circular would be sent this year to all the associations for the purpose of securing a list of their officers.

Mr. MACDONALD thought that according to

the Act the delegates should be required to bring certificates

Mr. RYKERT suggested that the Department of Agriculture be requested to furnish the Council with a list of the officers of the branch associations.

Hon. Mr. SKEAD pointed out a number of irregularities and illegalities in many of the credentials that had been sent in previous to the annual meeting of directors. He alleged that the list of delegates had been tampered with, as he had carefully examined it at five o'clock on the evening of the day of the annual meeting, and found only 91 votes on it, and yet no less than 128 votes were recorded when the vote was taken.

Mr. RYKERT contended that the Council had no legal right to pass a by-law regulating the voting at the meetings of the Association. That matter belonged to the Association. However, to bring the matter properly before them he would move the adoption of the report.

Mr. MACDONALD seconded the motion. Considerable discussion followed. It was unanimously conceded that some more stringent regulations respecting the manner of voting were needed, but it was held that that was a matter for a meeting of the whole Association.

Mr. RYKERT withdrew his motion, and the committee agreed to amend that clause of their report by striking out the reference to the passing of a by-law and recommending that some steps be taken to regulate the voting at the annual meetings, and that a precise form of credentials be prescribed for voters.

The report was then adopted.

Mr. RYKERT moved, seconded by Mr. Young, that the Secretary be instructed to apply to the Minister of Agriculture for a list of the officers of the branch associations, and that he be further instructed to write to the several agricultural societies requesting that all delegates to the annual meeting be furnished with proper credentials, at the same time furnishing them with blank forms. Carried.

The Council then adjourned till four o'clock.

The Council re-assembled at 4 o'clock.

The SECRETARY read a communication from Mr. Weld, asking the Council to petition the Legislature for assistance to enable him to carry out his emporium plan, or to accommodate him for the same purpose. The Council decided that, while appreciating Mr. Weld's exertions, they did not feel themselves at liberty to advise the Legislature in the matter.

In answer to the President,

Mr. GRAHAM, the Treasurer, said the Denison case was not yet decided by the Courts.

The Committee on Accounts reported, recommending the payment of a number of accounts amounting altogether to $2,043 60. Other accounts from newspapers for advertisements not ordered were referred to the Council. On motion it was resolved not to pay those accounts.

The report of the Committee was adopted.

The TREASURER, Mr. Graham, presented the following abstract of accounts up to 1st December:—

Balance on hand 1st Jan., 1870...		$1,649 97
Receipts since that date—		
Miscellaneous Accounts.....		771 54
Prize Account.....		112 00
Rents.....		1,000 00
Government Grant.....		10,000 00
Exhibition Receipts—		
Secy. on account of subscriptions.....	$900 00	
Do. on account of booths	1,510 00	
Entrance Fees at Gates	17,454 81	
Forage sold.....	464 65	
Other Items.....	52 00	20,381 46
On account of Denison.....		250 00
		$34,164 97
Payments—		
Miscellaneous Accounts.....		$1,905 09
Prizes.....		11,594 11
Council Expenses.....		1,206 75
Veterinary School.....		550 00
Salaries.....		1,689 98
Printing and Stationery.....		895 84
Legal Expenses.....		410 72
Exhibition Expenses.....		6,944 55
		$25,196 95
Balance on hand 1st Dec., 1870...		$ 8,968 02

Mr. GRAHAM added that there was about $500 yet to come in on Exhibition account. The total receipts were over $3,000 more than those of last year at London.

The PRESIDENT congratulated the Council upon the great success of the Exhibition, and expressed his belief that, all things considered, it was unequalled by any other similar association.

Prof. BUCKLAND presented a statement of expense of outs to illustrate the report of the Entomological Society, $106,77, which was ordered to be paid.

In answer to Mr. Young, the Secretary said there were nearly as many entries in the Stock Register as were in the first Herd book. It was agreed to instruct the Secretary to call for entries up to the 1st of June next for a second Herd Book.

The Council then adjourned.

Birmingham Cattle and Poultry Show.

The Birmingham and Midland Counties Show took place during the last week of November. The entries in all the classes were numerous; but, with some few exceptions, the individual excellence of the animals, says the *Mark Lane Express*, was scarcely up to the high standard one looks for at such an exhibition.

The first prize in the Shorthorn class was won by Mr. Pulver, of Kettering, beating the Earl of Aylesford, who gained the highest honours at the Smithfield Club Show of 1869. The Herefords, we are told, were not as good as usual. Mr. P. Turner, of Leen, obtained the first prize for the best steer, and Her Majesty the Queen the third. The Queen also obtained the first prize for the best Hereford Heifer. The Devons were remarkably good, and as usual of very even excellence.

In the polled class Mr. McCombie, of Tillefour, was beaten by Mr. Heath Harris, of Earnshill, near Forres, Morayshire, though he showed the brother of the famous Black Prince, that carried all before him at Smithfield and Birmingham in 1869. The present steer, shown by Mr. McCombie, is equally fat with his celebrated predecessor, and of exactly the same girth—9 feet 10 inches—but has little beyond his size to recommend him, and rightly gave place in the prize list to Mr. Harris' well proportioned and finely built ox. Mr. McCombie was deservedly successful in winning the first prize for the best cow of the same breed, which has so long been a specialty with him.

In the sheep classes, Lord Walsingham's Southdowns and Lord Berners' Leicesters, as usual, carried off the honours.

The show of pigs was better than usual in all except the class of large breeding pigs. The best fat pig, which the *Mark Lane Express*, our authority throughout in this report, pronounces almost "perfect," was exhibited by Mr. Duckering, of Northope, Lincolnshire.

Mr. R. Fowler, of Aylesbury, was winner in the class of Berkshires. The whole of this class was so meritorious that the judges nearly came to the conclusion of commending all the pens. Her Majesty obtained prizes for some excellent pigs of the Windsor (Suffolk) breed.

Guelph Fat Cattle Show.

The annual Christmas show of fat stock, under the auspices of the South Wellington Agricultural Society, took place at Guelph on Tuesday, Dec. 13, and notwithstanding the unfavourable state of the roads, was numerously attended. There was altogether a fine show of animals, in quality no way behind the excellence which has earned for the farmers of Wellington the highest reputation. The comparative absence of American buyers influenced the sales, but notwithstanding this drawback, some very high rates were paid for choice stock. The prices ranged from $3 50 to $10 per 100 lbs live weight. For fair, ordinary cattle, the figures would run from $3 50 to $4 50; for good, prime beef from $4 50 to $6; and for extra from $6 to $10, and in one case—that of Mr. Telfer's heifer—to $12. But all above $6 may be called fancy prices for fancy animals, and afford no criterion for the average rates paid for the common class of fairly fed cattle.

Some of the cattle had attained great weights. Among some of the most noticeable were Mr. P. Rennie's Sweepstakes prize steer, 2,273 lbs., sold to G. Hood at 11c. per lb. W. Armstrong also sold his cattle, which took prizes at Fergus, to Geo. Hood; one of the steers weighed 2,660, another 2,240 lbs. The two cows weighed 1,940 lbs. each. He sold them at $10 per 100 lbs., and one at $6 25 per 100 lbs. Mr. Hood was the winner of the chief prizes in the class of oxen over four years old, particularly, outstripping all competitors. In the class of cows over four years, seven fine massive animals were shown. The splendid cow owned by Mr. Alex. Watt, of Pilkington, which took the second prize at the Provincial Exhibition, carried off the highest honours. In the class of heifers also, of which there were six exhibited, the one owned by Mr. Watt, which took the first prize at the Provincial Show, carried off the red ribbon. Mr. Telfer was awarded the second prize for a very superior animal, of fine symmetry, which he sold for $12 per 100 lbs. In the sweepstakes a very handsome heifer, in the finest condition, which was fed by Mr. Peter Rennie, of Garafraxa, and sold to Mr. Geo. Hood, took the prize. There was a large and highly creditable show of sheep in all the classes. Messrs. Wright, Millar, Cowan, Walters and Hood were the principal prize takers. There was a fine lot of fat hogs. The turkeys, geese, &c., were both in size and fatness fully up to those shown in former years, and they were speedily bought up at high prices.

Smithfield Club Cattle Show.

The Smithfield Club Cattle Show took place in the Agricultural Hall, Islington, during the first week of December, and excited the usual interest, bringing together some of the finest specimens of live stock, and attracting a large concourse of visitors. Amongst the exhibitors were not only those who make stock-raising their regular calling, but amateurs from the ranks of the noble and wealthy, with Her Majesty and the Prince of Wales among the number, who thus give evidence of the estimation in which they hold the farmers' vocation.

The show this year was, by all accounts, up to the high standard of these annual exhibitions, and following so close on that at Birmingham possessed many of the same features of interest. The principal winners at the Midlands show were also successful in the metropolis, though, as usual, some of the awards at the first were not sustained in the larger competition of the Smithfield show. The show of short-horns was, perhaps, not of extra merit; but that of Devons was particularly fine. The Herefords were good. The champion plate, value £100, for the best beast in the show, was awarded to Mr. Pulver of Kettering, for a magnificent short-horn ox, winner at Birmingham. The gold medal for the best male animal, was won by Mr. Taylor for a Devon. The medal for the best cow or heifer, was also won for a Devon, by Mr. T. L. Senior. Mr. Heath Harris was again successful in the class of Scotch polled steers against Mr. McCombie.

The show of sheep was excellent, headed by Lord Berners' Leicesters, and Lord Walsingham's Southdowns.

The pigs were as usual a splendid lot.

A display of implements by the chief manufacturers in Britain, gave additional interest to the occasion; and the show of mammoth roots was really "prodigious" with mangolds weighing 50 lbs., and samples from crops yielding 72 tons per acre.

MONTHLY CATTLE FAIRS.

ELMIRA.—Second Monday in every month.
LISTOWEL.—The next cattle market will be held on Friday, April 8th, and thereafter on the first Friday before the Waterloo fair.
WATERLOO.—Second Tuesday in every month.
GALT.—Wednesday after the second Tuesday.
AYR.—The third Tuesday of the month.
PARIS.—The Wednesday after Ayr.
TEVIOTDALE.—The Friday before Guelph.
HARRISTON.—Friday before the Guelph fair
BOSWORTH.—Saturday before Guelph.
DRAYTON.—The day before Elora.
ELORA.—The day before Guelph.
GUELPH.—First Wednesday in each month.
NEW HAMBURGH.—First Tuesday in each month.
MOUNT FOREST.—Third Wednesday in each month
DURHAM.—Tuesday preceding the above.
FERGUS.—Thursday following Mount Forest.
ORANGEVILLE.—Second Thursday in January, March, May, July, September and November.
MONO MILLS.—Third Wednesday in January, April, July and October.
ERIN.—First Monday in January, April, July and October.
MASONVILLE.—First Tuesday in February, May, August and November.
BRAMPTON.—First Thursday in every month.

Hon. Horatio Seymour, of New York, is President of a cheese factory, which he considers to be more useful than had he been elected President of the United States.

The decrease in cultivated acres of wheat in Great Britain, according to the returns of 1870, is 5.3 per cent. Barley shows an increase of 5.2 per cent; cattle have increased 1.5 per cent., and sheep have decreased 4.40 per cent. The English evidently know where the money lies in farming.

The import of beet root sugar into England from the Continent is far more considerable than is generally supposed, and has averaged during the last three years something like 50,000 tons—an amount equal to that which she draws from the Mauritius.

The Conestago fat cattle fair was a success. There were present on the ground nearly 200 head and twelve buyers, several of whom were from Toronto, Guelph and Buffalo. Very large prices were in some instances realised, $80 and $90 being a common price for a fat ox.

There are 65,000 acres devoted to hops in England according to late estimates. In 1859 the acreage had fallen to 43,729, but there has been a gradual increase since that year until the present time. Of the total area, the county of Kent has about 33,000 acres, and Sussex 14,500.

The tenth volume of the American Shorthorn Herd Book is now in press. The ninth volume was issued in February last, yet this contains the pedigrees of about 1,800 bulls and 2,500 cows. The volume will probably be ready for the public in February next.

A short time ago a farmer near Decorah, Iowa, lost twelve head of cattle. Eleven died inside of six hours, and all within a radius of ten or fifteen rods of each other. The first impression was that they must have been poisoned. Others have lost cattle in a similar manner; and it is now attributed to eating smut in corn, for the animals had been running in the cornfields for ten or twelve days.

A movement is on foot at Elora for the establishment of a beet sugar manufactory. Several meetings have been held, and the conviction is that the soil of that section of Wellington is favourable to the growth of the sugar beet root. An establishment is also being formed in the adjoining county of Waterloo.

The sale of Mr. Spears' Shorthorns at Tallula, Illinois, advertised in our columns, we learn from the *Prairie Farmer* was well attended and successful. There were 23 head sold. Two brought $1,000 each, and 11, in all, $500 or more each. The lowest price was $150; and the next lowest $225. There were sold at the same time 72 Berkshire pigs at an average of $27 each. A number of the sows sold brought from $50 to $100 each.

The Acclimatization Society of New Zealand have sent to England their agent, to procure for that colony a number of English birds, including 100 sparrows, 100 robins, 100 chaffinches, 100 yellowhammers, 60 goldfinches, 60 linnets, 60 redpoles, 100 blackbirds, 85 thrushes, 120 larks, 2 pairs of blackcaps, 36 English partridges, and 2 brace of bladegame. He also takes out 18 head of red deer.

The *South Land* says that the damage done to the Cuban sugar crop alone, by the recent hurricanes, will have an effect reaching to every consumer of that commodity. The four districts that were devastated by the storm produced 316,000 tons of sugar in 1860, and their production for the present season was estimated at 400,000 tons. As these districts are in a narrow section of the island, it is feared that their entire crop has been destroyed, which will not only tend to raise the price of sugar, but will diminish Spain's revenue from Cuba.

The New England *Homestead* says that the Massachusetts Society for promoting Agriculture has awarded to Major Ben. Perley Poore, of Indian Hill Farm, near Newburyport, the premium of $1,000 which it offered in 1858 for the best plantation of forest trees, planted before 1860 and growing in 1870. The premium was offered in compliance with a statute "for the raising and preservation of oak and other forest trees best adapted to perpetuate, within the State an adequate supply of ship timber."

Mr. Charles Delamere, of New Orleans has discovered a process by which the saccharine property from sweet potatoes can be extracted and its precipitate made into sugar. He took one bushel of potatoes weighing fifty-two pounds, and, with a rude apparatus for extracting the juice, aided by the addition of some ingredients known only to himself, made two and three-quarters gallons of beautiful golden syrup. He estimates that a barrel of potatoes, worth on the plantation one dollar, will yield eight gallons of syrup, which would be sold cheaper than cane syrup.

Miscellaneous.

Backwoods Life

DEER-HUNTING EXTRAORDINARY.

On the morning following the bear-hunting extraordinary already related, I resumed my journey, and the valuation in which I had previously been engaged. A few miles from the scene of the former exploit I came suddenly to another little homestead, cut out of the dense woods. The clearing might be about five acres, and had been cleared the previous spring, and at that time had been partly planted with potatoes and the remainder sown with turnips.

As I cantered my horse through the wood along the pathway, I heard loud calls for assistance, and a female name, and an axe or pitchfork was loudly demanded. I hastened on, galloping my horse round the little field, towards the sound. The trees obstructed me somewhat, but I arrived in time to witness the death of a fine doe in the most extraordinary manner.

It seemed that a doe and her fawn had leaped over a low part of a remarkably well staked and ridered fence. This portion had been lowered as a gap. They were disturbed by the woman of the house returning with the cow through the woods, intending to enter by the same gap. The doe and her fawn ran across the clearing, seeking for some place of exit. It is well known that a doe will not readily leave her fawn within an enclosure if it is too high for the little one to jump over, and the mother therefore ran round the field seeking for some place of egress, but found none. The fence was everywhere ten rails high, double-ridered and staked. After making the circuit of the little field, the doe and fawn came round to the spot where they had entered, and encountered the woman and her cow. The woman ran towards them, thinking to catch the fawn, which could not be more than a few weeks old; at all events, it was very small and young. The doe turned, and jumped at the fence, but whether her attention was distracted by her care for her young one, or whether she slipped on the turnips, could not be ascertained, of course; but certain it was that she pitched directly across the fence, her fore legs on one side, and her hind legs on the other, within ten yards of where the woman was standing. She at once dashed forward and seized hold of the doe's hind legs, and held *manfully* on to them. The doe kicked furiously, and the woman finally had to let go one leg, and put out her whole strength to retain possession of the other. This she succeeded in doing, and at the moment of my arrival her daughter, a girl of about twenty years old, muscular and tall, had just succeeded in finishing this most unequal contest by a vigorous stroke with the axe, which ended at once the struggles of the doe and her maternal anxiety for her fawn. The little creature came up quite close to its dead mother, and was easily captured. In fact it would not go away, but bleated and smelt about its dam most pitifully. We took the doe to the house and skinned her, and I had some of her meat for dinner. Her fawn became quite tame, and I offered the woman $4 for it for a pet for my sister's children. I had none of my own at that time. She declined selling it, and kept it as a pet about the house for years. It always wore a bell and red flannel collar to distinguish it from its wild playmates, who sometimes came to see it, being a female, and many a fine buck has paid the penalty of his life for the pleasure of a visit, the red collar always causing sufficient distinguishing mark to ensure its not being shot. At these seasons the bell was dispensed with. The collar, however, came off one day, and the owner shot her for a wild deer.

About that time, and for several years afterwards, deer were so plentiful that they could be shot at any time—almost, in fact, any week you could get a shot at one. I recollect, afterwards, seeing from a high elevation, in our own field, a herd of fourteen feeding on our young wheat, and a most beautiful sight it was, when my brother, creeping round in a ravine, came face to face with them all. It was evening, and the moment he appeared a splendid buck raised his head and looked at him for a second, then threw up the fan-like tail, and away the whole herd went over the fence, each taking a leap in its turn in the most beautiful manner imaginable.

To draw an old nail, first hit a blow with the hammer sufficiently hard to start it in; this breaks the connection with the wood which rust has made, and it is easily removed.

Plank walks about the house will save wet feet, colds, coughs and very likely heavy doctor's bills. Old boards, slabs, etc., with blocks nailed upon the under side, will answer very well.

One of the largest wheat growers of Alameda county, Cal., having had some experience in dealing with commission merchants, chartered a vessel this year himself, and has sent 1,200 tons of wheat direct to the Liverpool market.

A correspondent of the *Rural New Yorker* thinks that the safe, successful plan is to continue to cultivate hops, where the crop is established on good ground and in a good locality, notwithstanding the discouragements of the present and two preceding seasons.

At a late meeting of the New York Farmers' Institute, cranberry growing in New Jersey had a hearing, disclosing the fact that good judges estimated the crop in Ocean county at 25,000 bushels. The ruling price at present is $3 25 per bushel, but an advance on these figures is expected by the holders. There are two practical enemies of the cranberry; two classes of worms and grasshoppers. A flock of turkeys will do for the latter, and timely flooding for the former.

Advertisements.

Steel Tooth Sulky Horse Rake

1st Prize, Provincial Fair, London, 1869!
1st Prize, Provincial Fair, Toronto, 1870!!

Will do more work, easier, cleaner, and better than the common rakes. It does not gather dead in the hay. Will rake over rougher ground. Is light and strong, well-made and nicely finished. The teeth are fine spring steel, independent of each other, and will yield to pass obstructions without bending or breaking. The best in use. Furnished *with* or *without* Plaster Sower attachment or Hay Tedder. For references, &c., send for circulars.

☞ Active Local Agents Wanted in every County.

JAMES SOUTAR & CO.,
Agricultural Foundry and Warehouse,
v3-1-tf. *Chatham, Ont.*

CHEESE APPARATUS.

PEDLAR'S SMALL CHEESE VATS

ARE noted for being the cheapest, simplest, and most complete Vat and Heater yet introduced. Vat and Heater, all in complete running order, suitable for a Dairy of from ten to 30 cows, **$30.00**—delivered to any station in Ontario *free from freight charges.*

Factories supplied throughout with everything of the latest improvement, at a very cheap rate. The best PRESS SCREWS at **$2.50** each, delivered.

☞ Before buying, write to

GEO. H. PEDLAR, Drawer 5,
Agents Wanted. Oshawa, Ont.
2-12-tf.

BREAKFAST.

EPPS'S COCOA.

GRATEFUL AND COMFORTING.

"THE very agreeable character of this preparation has rendered it a general favourite. The *Civil Service Gazette* remarks:—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills." Made simply with boiling water or milk. Sold only in tin-lined packets, labelled—

JAMES EPPS & Co.,
v2-11-12t *Homœopathic Chemists, London.*

TO BEE-KEEPERS.

HAVING taken the First Prize on my Bee Hives at every Provincial Fair, for the last seven years, they have gained a reputation unsurpassed by any hive in America. Such being the case, I now give notice that I shall not enter my hives for a prize at any coming Provincial Fair, believing their reputation as the best hive in the market is sufficiently established.

I am sending hives to England, the United States, and every part of the Dominion, and shall be pleased to fill any orders accompanied with the cash for Hives, Honey Extractors, Italian Bees and Queens and everything belonging to the Apiary. CANADIAN BEE-KEEPERS' GUIDE, post-paid, 25 cents.

☞ Bee-keepers residing in the Townships of Thorold and Sydney will hereafter send their orders to C. C. Chapin, Belleville, Ont., as he is now the owner of that territory. Those residing in the Counties of Lennox and Addington, to Allan Pringle, Selby, Ont., as he has purchased those counties.

Territory still for sale cheap.

THE AMERICAN BEE JOURNAL, Prince of *Bee Journals*, furnished to subscribers at $1.75, Dominion currency. No Bee-keeper should be without it.

J. H. THOMAS, Brooklin, Ont.
v3-1-tf

THE JOSEPH HALL MACHINE WORKS,

(ESTABLISHED 1851,)

OSHAWA, ONTARIO.

THE JOSEPH HALL MANUFACTURING COMPANY

PROPRIETORS,

MANUFACTURE THE CELEBRATED

LEFFEL PATENT

DOUBLE TURBINE WATER WHEEL.

Our New Patent Iron Case or Flume.

We are the only manufactorers who can furnish the genuine LEFFEL WHEEL in Canada, as will be seen by the following certificate:—

SPRINGFIELD, Ohio, Dec. 25, 1868.

We take pleasure in informing the public of Canada, that we have sold and furnished Mr. F. W. Glen, of Oshawa, Ontario, Patterns, Forms, Drawings, Gangee, and all other necessary information to build our celebrated Double Turbine Water Wheel, invented by James Leffel, and known as the "Leffel Wheel." We have also obligated ourselves to furnish the same facilities for manufacturing to no other parties in Canada. Without the information we have given to Mr. GLEN, no one can successfully build our Wheels, and we advise parties in Canada to purchase our Wheels of no other manufacturer. Mr. GLEN's facilities are unsurpassed, and we feel sure that he will build a Wheel that will give perfect satisfaction. We therefore commend him to the public of Canada with entire confidence, feeling sure he will manufacture a Wheel in all respects equal to our own.

(Signed,) JAMES LEFFEL & CO.

WARRANTY.

We are prepared to furnish Water Wheels, Gears, Shafts, Pulleys, and all Machinery necessary to attach the Wheels to the Machinery they are intended to drive; and if, after two months' trial, they are not satisfactory, we will take all back, pay freight both ways, and refund any paymeats made to us thereon. Where parties are not satisfied with the Wheel, and cannot make a change at the time without loss to business, they may run the Wheel and Machinery a reasonable time without charge, not exceeding one year, in order that they may make a change without injury to their business.

Below are given the names of parties who are now using from ONE TO TEN each of our wheels; and we invite parties who wish to purchase to correspond with them.

David Arnold	Dawn.	Gordon, McKay & Co.	Thoroid.	S. L. Purdy	Brighton.
Thomas Arkell	Arkell.	Wm. & Walter Guthrie	Wilmot.	Peck, Benney & Co.	Montreal,
Boucher & Anderson	Georgina.	Wm. Hillier	Enniskillen.	C. Parish	Wick.
Bowman & Pringle	Avening.	Hilliard & Dixon	Pakenham.	James Ruddy	Uxbridge.
William Bean	Oshawa.	G. B. Hall	Quebec.	Thomas Quickfall	Elora.
A. Bontin & Co.	Valleyfield.	Hunter Bros.	Almonte.	A. D. Ross	Beauvirage.
A. Barbeau	St. Davids.	Capt. R. T. Raynes	Montreal.	R. & W. Rosemand & Co.	Almonte.
N. Barnhart	Toronto.	John Haggerk	Perth.	John Russell	Claremont.
J. B. Bickell	Columbus.	John Hellwell	Highland Creek.	Edward Smith	Oshawa.
Wm. Barnes	Bangor.	Heath & Horton	Forestville.	South Bros.	Bowmanville.
A. J. Buck	Norwood.	R. T. Harrison	Brooklin.	Moses Smith	Duffin's Creek.
Wm. Broomfield	Eddystone.	Irwin & Boyd	Port Hope.	Thos. W. Stephenson	Norwood.
J. M. Brace	Hubbel's Falls.	John Inglis	Guelph.	Staples & Schulenberg	Collingwood.
Christopher Burrell	Stanley Mills.	D. F. Jones & Co.	Gananoque.	E. & J. H. Smith	Bangor.
Jacob Bricker	Waterloo.	A. Lomas	Sherbrooke.	Alex. Small	Oshawa.
J. Craveth	Lascard.	James Leigh	Orono.	Thos. Stephenson	Grafton.
C. W. Card	Cannington.	Calahan Lent	Newcastle.	John Shaw	Normandale.
James A. Close	Napanee.	J. G. Langman	Craigburst.	George Stacey	Montreal.
A. & J. Clemmens	Bespeler.	A. J. Lockhart	Orono.	John Smith	Montreal.
A. Chown	Kingston.	Hugh Munro	Cannington.	Peter Simpson	Smith's Falls.
James Dyer	Perrytown.	J. W. Marsden	Newmarket.	Charles Smith	Warkworth.
John Dyke	Uxbridge.	John McDougall	Montreal.	R. Staples	Cobourg.
Diamond & Diamond	Belleville.	Wm. Murray	Mildmay.	Ellis & Shupe	Bespeler.
Samuel Davidson	Lindsay.	John McRae	Renfrew.	Thos. B. Summerville	Belfast.
C. E. Drewry	Mountain View.	McDowall & Stette	Demorestville.	Stephenson & Easton	Brampton.
M. Davern	Napanee.	Samuel Mercer	New Hamburg.	Torr Bros.	Mount Albert.
James Elliot	Port Hope.	Isaac Modeland	Elora.	John Thompson	Brooklin.
Nicholas Egan	Tottenham.	John McEachern	Renfrew.	Wm. Tuer	Hayden.
Rufus Everts	Everton.	John Nichol	Shorbrooke.	David Towns	Bowmanville.
Robert Forsyth	Montreal.	Wm. Noxon	Bloomfield.	Thomas & Townsend	Orono.
Frances Bro.	Brooklin.	A. W. Oglevie & Co.	Montreal.	Thompson & Burns	Bowmanville.
Farrand & Miles	Campbellford.	John Parish	Sonya.	George Wheeler	Uxbridge.
S. J. Green	Greenwood.	Wm. Potter	Bowmanville,	P. W. Wood	Montreal.
Thomas Gibson	Wroxeter.	Richard Pert	Leakadale.	John Woodley	Petrolia.
Joseph Gould	Uxbridge.	Paton Manufacturing Co.	Sherbrooke.	T. P. White	Whitevale.
William Gomlo	Glasgow.	William Press	Pickering.	Mr. Ward	Greenville.
Gibbs & Bro.	Oshawa.	James L. Palmer	Duffin's Creek.	James McNight	Windham Centre.
H. & G. Greenwood	Grafton.	Pemberton & Co.	Quebec.		

We also manufacture **Portable and Stationary Steam Engines and Boilers**, of all kinds and sizes. Saw Mill Machinery of all kinds, including English and American Gangs. Swartout Patent Oscillating Gang and Muley Saw Mills. Hand-setting and Self-setting Circular Saw Mills. Single and Double Edges. Flour Mill Machinery of all kinds, with all late improvements. Single and Reading Machines and Jointers. Stave and Lath Machines. Wood Working Machinery of all kinds. Engine Lathes of all sizes, Planers, Drilling Machines. Boring Machines, Bolt Cutters, Woollen Machinery. Leather Splitting Machines and Knife Grinders. Washington Hand Printing Presses. Gordon Power Presses. Taylor's Cylinder Presses. Paper Cutters, Engine Governors, Shafting, Pulleys. Self-adjusting Hangers with Self-oiling Boxes. Castings of all kinds made in brass or iron. New Machinery of any kind made to order. Patterns of every description made when desired.

☞ All Machinery warranted to be made of first-class material in a thoroughly workmanlike manner.

Parties desiring further information, address F. W. GLEN, President, Oshawa, Ont.

v3-1-12t

New-York Tribune.

1871. Daily, Semi-Weekly and Weekly. 1871.

THE WEEKLY TRIBUNE,

The Paper of the People.

THE TRIBUNE aims to be pre-eminently a *Newspaper*. Its correspondents traverse every State, are present on every important battle-field, are early advised of every notable Cabinet decision, observe the proceedings of Congress, of Legislatures, and of Conventions, and report to us by telegraph all that seems of general interest. We have paid for one day's momentous advices from Europe by Cable far more than our entire receipts for the issue in which those advices reached our readers. If lavish outlay, unsleeping vigilance, and unbounded faith in the liberality and discernment of the reading public, will enable us to make a journal which has no superior in the accuracy, variety, and freshness of its contents, THE TRIBUNE shall be such a journal.

To Agriculture and the subservient arts, we have devoted, and shall persistently devote, more means and space than any of our rivals. We aim to make THE WEEKLY TRIBUNE such a paper as no farmer can afford to do without, however widely his politics may differ from ours. Our reports of the Cattle, Horse, Produce and General Markets are so full and accurate, our essays in elucidation of the farmer's calling and our regular reports of the Farmers' Club and kindred gatherings, are so interesting, that the poorest farmer will find therein a mine of suggestion and counsel, of which he cannot remain ignorant without positive and serious loss.

THE TRIBUNE has been, is, and must be a zealous advocate of Protection to Home Industry. Regarding habitual idleness as the greatest foe to human progress, the bane of human happiness, we seek to win our countrymen in masses from the ensnaring lures of Speculation, of Traffic and of always over-crowded Professions, to the tranquil paths of Productive Industry. We would gladly deplete our over-crowded cities, where thousands vainly jostle and crowd in misguided quest of "Something to Do," to cover prairies and plains with colonies absorbed in Agriculture, Mechanics and Manufactures, and constantly projecting into the blank, void wilderness the homes and the works of civilized Man. Holding the Protection of Home Industry by discriminating duties on imported Wares and Fabrics essential to the rapid, beneficent diffusion of Production in all its phases and departments, and so to the instruction of our people in all the gainful arts of Peace, we urge our countrymen to adhere to and uphold that policy in undoubting faith that the true interest, not of a class or a section, but of each section and every useful class, is thereby subserved and promoted.

We sell THE WEEKLY to Clubs for less than its value in dwellings for waste-paper; and, though its subscription is already very large, we believe that a Half Million more farmers will take it whenever it shall be commended to their attention. We ask our friends every where to aid us in so commending it.

AS A FAMILY NEWSPAPER,

THE WEEKLY TRIBUNE is pre-eminent. In addition to Reviews, Notices of New Books, Poetry, &c., we publish Short Stories, original or selected, which will generally be concluded in a single issue, or at most in two or three. We intend that THE TRIBUNE shall keep in the advance in all that concerns the Agricultural, Manufacturing, Minting, and other interests of the country; and that; for variety and completeness, it shall remain altogether the most valuable, interesting, and instructive NEWSPAPER published in the world.

No newspaper so large and complete as THE WEEKLY TRIBUNE was ever before offered at so low a price.

TERMS OF THE WEEKLY TRIBUNE.

To Mail Subscribers.

One copy, one year, 52 issues.....$2
Five copies.....9.

To ONE ADDRESS, all at one Post Office.

Ten Copies.....$1 50 each.
Twenty Copies.....1 25 "
Fifty Copies.....1 00 "
And One Extra Copy to each Club.

To NAMES OF SUBSCRIBERS, all at one Post Office.

Ten Copies.....$1 60 each
Twenty Copies.....1 35 "
Fifty Copies.....1 10 "
And One Extra Copy to each Club. U. S. postage 20 cents per copy, must be added.

Persons entitled to an extra copy can, if preferred, have either of the following books, postage prepaid: Political Economy, by Horace Greeley; Fear Culture for Profit, by P. T. Quinn; The Elements of Agriculture, by Geo. E. Waring.

The New York Semi-Weekly Tribune

Is published every TUESDAY and FRIDAY. THE SEMI-WEEKLY TRIBUNE gives, in the course of a year, THREE OR FOUR of the

Best and Latest Popular Novels,

By living authors. Nowhere else can so much current intelligence and per manent literary matter be had at so cheap a rate as in THE SEMI-WEEKLY TRIBUNE.

TERMS OF THE SEMI-WEEKLY TRIBUNE.

One copy, one year—104 numbers.....$4 00
Two copies.....7 00
Five copies, or over, for each copy.....3 00
U. S. postage, 40 cents per copy, must be added.
An extra copy will be sent for every club of ten sent for at one time; or, if preferred, a copy of Recollections of a Busy Life, by Mr. Greeley.

DAILY TRIBUNE.

Mail Subscribers.....$10 per annum.

****To subscribers wishing to preserve Mr. Greeley's Essays, "*WHAT I KNOW OF FARMING,*" and who pay the full price, i. e., $10 for* DAILY, *$4 for* SEMI-WEEKLY, *or $2 for* THE WEEKLY TRIBUNE, *we will send the book, post-paid, if request be made at the time of subscribing.*

BOOKS FOR SALE AT THE TRIBUNE OFFICE.

THE TRIBUNE ALMANAC for 1871. Price 20 cents.
TRIBUNE ALMANAC REPRINT. 1838 to 1868. 2 Vols. Half Bound, $10.
RECOLLECTIONS OF A BUSY LIFE. By Horace Greeley. Various styles of binding. Cloth, $2.50. Library, $3.50. Half Morocco, $4. Half Calf, $5. Morocco Antique, $7.
POLITICAL ECONOMY. By Horace Greeley. $1 50.
EWBANK'S HYDRAULICS AND MECHANICS. Sixteenth Edition. Large octavo. Cloth, $5.
FEAR CULTURE FOR PROFIT. Quinn. $1.
ELEMENTS OF AGRICULTURE. Waring. New Edition. Cloth, $1.
DRAINING FOR HEALTH AND PROFIT. Waring. Cloth, $1.50.
Sent free on receipt of price.

In making remittances, always procure a draft on New York, or a *Post Office Money Order*, if possible. Where neither of these can be procured, send the money, *but always in a* REGISTERED *letter*.

Terms Cash, in advance.

Address,

THE TRIBUNE, New York.

v3-1-1t

The Burlington and Mo. River R. R. Co.

Offer about 2,000,000 Acres

IOWA AND NEBRASKA LANDS

FOR SALE

On 10 Years' Credit, at 6 pr. ct. interest,

No part of Principal due for two years from purchase, and afterwards only one-ninth yearly.

Products will Pay for Land and Improvements.

The Liberal Credits given; Free Passes allowed; small annual payments required; the current market value of money, and profits on stock raising, prove these terms cheaper, easier and better than to buy U. S. land within railroad-land-limits at $2.50 per acre, while our prices range generally from 4 to 5, 6, 8 and 10 Dollars per acre. Quality and local advantages rule the price.

On these Generous Terms the industrious and competent can buy and pay for a good Farm and Home. In beginning, it is necessary to have money enough to pay six per cent. interest on the land, obtain provisions, build a cabin, buy a team and agricultural implements till crops are raised, which can be done the first season, by commencing in early Spring.

CIRCULARS giving full particulars are supplied gratis, and any wishing to induce others to emigrate with them, or to form a Colony, are invited to ask for all they want to distribute.

A SECTIONAL MAP, showing exact location of Lands for sale in Iowa, is sold for 30 cents, and a similar Map of Nebraska Lands is sold for 20 cents.

Apply to **GEO. S. HARRIS,**
Land Commissioner, Burlington & Mo. River R. R. Co.

For Iowa Lands, at BURLINGTON, IOWA.

For Nebraska Lands, at LINCOLN, NEBRASKA.

v3-1-3t.

GREGORY'S

Illustrated Catalogue

OF

GARDEN AND FLOWER SEEDS.

Having in former years introduced to the public the Hubbard Squash, American Turban Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Phinney's Water-Melon, Brown's New Dwarf Marrowfat Pea, Boston Curled Lettuce, and other

NEW AND VALUABLE VEGETABLES,

with the return of another season I am again prepared to supply the public with Vegetable and Flower Seeds of the purest quality. My Annual Catalogue is now ready, and will be sent *free* to all. My customers of last year will receive it without writing for it. It abounds in fine engravings, many of which were taken from photographs of the vegetables themselves. It has not only all novelties, but all the standard vegetables of the farm and garden, (over one hundred of which are of my own growing,) and a carefully selected list of Flower Seeds.

All my seed is sold under three warrants,—1st: *That all money sent shall reach me.* 2d: *That all seed ordered shall reach the purchaser.* 3rd: *That my seeds shall be fresh, and true to name.* I invite all to send for catalogues, both for themselves and their friends.

JAMES J. H. GREGORY, MARBLEHEAD, MASS.

v3-1-3t

EPILEPSY OR FITS.

A SURE CURE for this distressing complaint is now made known in a Treatise (of 48 octavo pages) on Foreign and native Herbal Preparations, published by DR. O. PHELPS BROWN. The prescription was discovered by him in such a providential manner that he cannot conscientiously refuse to make it known, as it has cured everybody who has used it for Fits, never having failed in a single case. The ingredients may be obtained from any druggist. Persons desiring a copy may address DR. O. PHELPS BROWN, No. 21 Grand Street, Jersey City, N. J.

v3.1-1t.

VINEGAR, HOW MADE FROM CIDER, Wine, Molasses or Sorghum, in 10 hours, without using drugs. For circular address F. I. SAGE, Vinegar Maker, Cromwell, Ct. v2-9-12t

DOMINION OF CANADA

V. R.

EMIGRATION

TO THE

PROVINCE OF ONTARIO.

To Capitalists,
Tenant Farmers,
Agricultural Labourers,
Mechanics,

DAY LABOURERS,

And all Parties desirous of Improving their Circumstances by Emigrating to a New Country.

THE attention of intending Emigrants is invited to the great advantages presented by the Province of Ontario. Persons living on the interest of their money can easily get eight per cent. on first-class security.

Tenant Farmers with Limited Capital

Can buy and stock a Freehold Estate with the money needed to carry on a small farm in Britain. Good cleared land, with a dwelling and good barn and outhouses upon it, can be purchased in desirable localities at from £4 to £10 Stg. per acre. Farm hands can readily obtain work at good wages. Among the inducements offered to intending Emigrants, by the Government, is

A FREE GRANT OF LAND

(WITHOUT ANY CHARGE WHATEVER.)

Every Head of a family can obtain; on condition of settlement, a FREE GRANT of two hundred acres of land for himself, and one hundred acres additional for each member of his family, male or female, over eighteen years of age.

All Persons over 18 years of age can obtain a FREE GRANT OF 100 ACRES.

The Free Grants are protected by a Homestead Exemption Act, and are not liable to seizure for any debt incurred before the issue of the patent, or for twenty years after its issue. They are within easy access of the front settlements, and are supplied with regular postal communication.

Registers of the Labour Market

And of Improved Farms for sale, are kept at the Immigration Agencies in the Province, and arrangements are made for directing emigrants to those points where employment can be most readily obtained. Several new lines of railway and other public works are in course of construction, or about being commenced, which will afford employment to an almost unlimited number of abourers.

Persons desiring fuller information concerning the Province of Ontario, are invited to apply personally, or by letter, to the Canadian Government Emigration Agents in Europe, viz.: Wm. Dixon, 11 Adam Street, Adelphi, London, W. C.; J. G. Moylan, Dublin; Charles Foy, Belfast; David Shaw, Glasgow; and E. Simays, Continental Agent at Antwerp.

Also to the Emigration Agents in Canada, viz:

John A. Donaldson, Toronto; R. H. Rae, Hamilton; Wm. J. Wills, Ottawa; Jas. Macpherson, Kingston; L. Stafford, Quebec; J. J. Daley, Montreal; E. Clay, Halifax, Nova Scotia; Robert Shives, St. John, and J. G. G. Layton, Miramichi, New Bronswick, from whom pamphlets issued under the authority of the Government of Ontario, containing full particulars in relation to the character and resources of, and the cost of living, wages, &c., in the Province, can be obtained.

JOHN CARLING,
Commissioner of Agriculture and Public Works for the Province of Ontario.

Department of Immigration,
Toronto, October, 1869. v2-2-12t.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Jan. 12th, 1871.

FLOUR AND MEAL.

The market in produce has been quiet, with few transactions. The tendency of prices is upward, and holders, expecting a further rise, are unwilling to sell. The following are present quotations:—

Flour—Superfine, $5 25 to $5 30; Fancy, $5 40 to $5 50; Spring Wheat, extra, $5 30 to $5 40, Extra, $5 75 to $6; Superior Extra, $6.

Oatmeal—$6.20 to $5.25.

Cornmeal, in small lots—$3.75 to $4.25.

Bran, in ton lots—$15.

GRAIN.

The dulness provailing in Flour, and for similar reasons, characterises the grain market.

Wheat—Soules, $1 20 to $1 25; Spring, $1 15 to $1 16, Spring Midge Proof, $1 15 to $1 16; Treadwell, $1 16 to $1 18.

Barley—Inferior, 50c to 55c; Do., bright, 60c to 63c.

Oats—43c to 44c.

Peas—68c to 70c.

Rye—70c.

HAY AND STRAW.

The market has been pretty well supplied, and the prices range for *Hay* from $9 to $13.50; *Straw*, $7 to $8.

THE CATTLE MARKET.

Trade is recovering somewhat from the dulness which usually prevails at this season of the year.

Beeves from $3.25 to $5 per 100 lbs.

Sheep from $3 to $7.

Calves from $3.50 to $8.

Lambs from $2.75 to $5.

PROVISIONS.

Pork—Mess, $19 to $19 50.

Bacon—Cumberland cut, 6½c to 10c.

Hams—Salted, 10c to 11c.; Smoked, new; 11c to 12c.

Lard—In tinnets, 12c to 13c; In tierces, 11c to 12c.

Butter—Choice dairy, 17c to 19c.

Cheese—Recsor's Stilton, 18c; Royal Arms, 17c.

Eggs—Fresh, 22c to 25c per dozen.

Dried Apples—6c to 7c.

Hops—Superior, 15c to 16c; Ordinary, 8c to 12c.

Salt—Goderich, $1 55; American, $1 85; Liverpool, per bag, 75c to 80c.

PROVINCIAL MARKETS.

Montreal.—*Flour*—Extra, $6.30 to $6.35; Fancy, $5.90 to $6; Welland Canal Superfine, $5.75; Superfine No. 1 Canada Wheat, $5.70 to $5; No. 1 Western Wheat, $5.70 to $5.75; No. 2 Western Wheat, $5.30 to 6.40; Bag Flour $2.60 to $2.60. *Wheat*—Western, $1.19 to $1.23. *Oats*—Per 32 lbs., 43c to 45c. *Barley*—Per 48 packed, 14c. to 17c. *Ashes*—Pots, $6 to $6.05; Pearls, $5 to $6.05. *Pork*—Mess, $19.50 to $20; Prime Mess, $16; prime, $15. *Dressed Hogs*—$6.62 to $7.

London, Jan. 10.—*Spring Wheat*, $1.18 to $1.25. *Red Fall Do.*, $1 to $1.16; *White Do.*, $1.10 to $1.25. *Barley*, 45c to 60c. *Peas*, 62½c to 70c. *Oats*, 41c to 42c. *Corn*, 65c to 68c. *Rye*, 40c to 50c. *Clover Seed*, $4.50 to $5. *Dressed Hogs*, $6 to $6.70.

Hamilton, Jan. 10.—*Wheat*—Delhi, $1.28 to $1.30; Soules, $1.25 to $1.27; Treadwell, $1.22 to $1.25; Winter Red, $1.18 to $1.20; Amber, $1.18 to $1.20; Spring, $1.17 to $1.20. *Barley*, 50c to 52c. *Peas*, 70c to 72c. *Oats*, 45c to 47c. *Flour*, Superfine, $6 to $6.50; Extra, $6.50 to $6; Superfine No. 1, $5 to $5.50; do. No. 2, $4.50 to $5; fine, $4. *Oatmeal*, per 100 lbs., $1.75 to $2. *Butter*, in rolls, 20c to 25c; do., tub, 17c to 19c. *Cheese*, 12c to 13c. *Eggs*, 30c. *Honey*, 25c. *Apples*, 60c to 90c. *Potatoes*, 51c to 60c. *Green Hides*, No. 1, inspected, $6.50; do No 2, $7.50; Calfskins, green, 10c; do dry, 15c to 20c; lambskins, 50c to $1; pelts, 60c to $1.

Guelph, Jan. 10.—*Wheat*—Fall, per bush, $1.18 to $1.27; Spring do., $1.18 to $1.20; Treadwell do, $1.16 to $1.22. *Oats*, 35c to 41c. *Peas*, 64c. *Barley*, 45c. to 50c. *Hay*, per ton, $8 to $9.50. *Straw*, per ton, $3 to $4. *Wood*, per cord, $3.50 to $4. *Eggs*, per doz., 20c to 24c. *Butter*, storepacked, per lb., 12c to 18c; dairy-packed, per lb, 15c to 16c. *Potatoes*, per bag, 40c to 50c. *Apples*, per bag, 40c to 50c. *Pork*, per 100 lbs, $5.88 to $6.75.

Contents of this Number.

	PAGE.
THE FIELD:	
Winter Work on the Farm	1
Preparing Seed Grain; Beet Root Sugar	2
Our Roads	4
Arrangement of Farm Buildings	4
How to obtain Ammonia; Top Dressing on Grass Lands	6
STOCK DEPARTMENT:	
Report of Judges on Live Stock at the Royal Agricultural Show, 1870	6
Winter Feeding of Farm Stock; Black Noses in Short-horns	8
Wintering Calves; Teeth as a Test of Age	9
Acorns poisonous to Cattle; A Model Stable Keeper	10
VETERINARY DEPARTMENT:	
Tetanus in Horses	10
Treatment of Tetanus: Mange in Cattle; Tumour after Abscess; Loss of Power in the Hind Quarters	11
Shoeing; Cramp; The Horse's Foot	12
THE DAIRY:	
Dairying in California; American Dairymen's Convention; Winter Milk; Selecting Milch Cows	13
Butter-making in Kentucky; The Strippings	14
ENTOMOLOGY:	
The Codling Moth; Destructive Grain Insects	15
RURAL ARCHITECTURE:	
Design for a Small Farm Dwelling (with Illustrations)	16
How to Avoid Wet Cellars; Repairing Buildings; Size of Building Timber	17
POULTRY:	
Birmingham Poultry Show	18
CORRESPONDENCE:	
Farming as a Profession	18
Encourage the Boys and Girls	19
Crops in Sidney—Fall Ploughing, &c.; Leached Ashes for Sugar Beets	20
Lands and Farms for Lease	21
EDITORIAL:	
Our New Volume; Farm Accounts	21
Agricultural and Arts Association; Foot and Mouth Disease	23
Knowledge in Agriculture; Beet Root and Beet Root Sugar	24
Agricultural Societies; Notes on the Weather	25
HORTICULTURE:	
Report of the Fruit Growers' Association	25
Our Best Fruits; Roses for Canada; Winter Window Gardening; Fairy Rings; Japan Lilies	27
Bark-epiting; Gen. Grant Tomato; To Prevent Mice from Gnawing Trees; Grape Culture	28
The Aspen; Gardening in the Evening of Life; The Kilmarnock Willow (with cut); The Profits of Grape Culture	29
Keeping Cabbage in Winter; Low Headed Standard Pear Trees; Grafting Large Trees	30
POETRY:	
The Two Armies; Under the Leaves	30
APIARY:	
Bee-Keeping; Review of the Past Season; Bee-Hives; Superstition among Bee-Keepers; Letter from Texas	31
HOUSEHOLD:	
Packing Pork; Domestic Receipts	32
To Cook Vegetables; A Home-made Earth Closet	33
AGRICULTURAL INTELLIGENCE:	
Agricultural and Arts Association	33
Birmingham Cattle Show; Guelph Fat Cattle Show	34
Smithfield Club Cattle Show; Monthly Cattle Fairs; Items	35
MISCELLANEOUS:	
Backwoods Life; Items	36

THE CANADA FARMER is printed and published on the 16th of every month, by the GLOBE PRINTING COMPANY, at their Printing House, 26 and 28 King Street East, Toronto, Ontario, where all communications for the paper must be addressed.

Subscription Price, $1 per annum (POSTAGE FREE) payable in advance.

THE CANADA FARMER presents a first-class medium for agricultural advertisements. Terms of advertising, 20 cents per line space. Twelve lines' space equals one inch. No advertisements taken for less than ten lines' space.

Communications on Agricultural subjects are invited, addressed to "*The Editor of the Canada Farmer*," and all orders for the paper are to be sent to

GEORGE BROWN,
Managing Director.

1871 [illegible] 18[illegible]

[illegible] CANADA FARMER.

E. [illegible] M[illegible] C[illegible] England.
[illegible] LE, Esq. St. Catharines.
[illegible] CKLAN[illegible] L. CULL,
Esq., CULL, [illegible] WHITCOMBE, [illegible]., M.R.A.C.;
E[illegible]

[illegible]ONTRIBUTORS—PR[illegible]
DRAINAGE EDITO[illegible] M.
ARCHITECTURAL [illegible]
ENTOMOLOGICAL [illegible]
V[illegible]Y E[illegible] Edin.
[illegible]DITOR[illegible].

The Conductors of THE CANADA FARMER will continue to l[illegible]nestly f[illegible]r the [illegible]llo[illegible]nds—

To arouse attention, by frank and temperate discussio[illegible], to all questions, scientific, commercial, legislative or otherwi[illegible], specially affecting the farming interests.

To stimulate the agriculturists of o[illegible] country to ad[illegible] proved system of hu[illegible]ndry, by blending the [illegible]essons of modern science with the practical experience of the Canadian farmer.

To bring under the attention of our farmers all improvements a[illegible]nd abroad, worthy of adoption, affectin[illegible] the [illegible]ent of Field Crops—the Barn Yard—the [illegible]e Orchard—th[illegible] Poultry Yard—the Ap[illegible] Kit[illegible]n Gard[illegible]—and the Flower Garden; and to [illegible]it terest in the [illegible] of Rural Architecture [illegible] rden[illegible], and all that concerns the domesti[illegible]onomy [illegible] House.

To k[illegible]d port a[illegible] improvements in Agricultural Machinery, [illegible] inventions, and promot[illegible] the adoption of all [illegible]ving machines, in the [illegible]k of the farm and garden.

To keep prominently under attention all that specially concerns the Dairy Farmer and the Grazier—the best breeds of Cattle —the best systems of feeding—the most approved processes of cheese and butter making—the best mode of packing—and the best markets to sell in.

To keep prominently in vi[illegible] whatever is [illegible]ting to [illegible] heep-raiser and Wool-grower—t[illegible] b[illegible]t adapted [illegible] o[illegible] climate—the best system of winter and summer [illegible] ment—and the varying prospects of [illegible]e [illegible]l [illegible]

To [illegible]ord the Farmers of Canada an ever-open medium for addressing their brother Agriculturists throughout the Dominion, suggesting me[illegible] of common interest and advantage, and[illegible]li[illegible]iting [illegible]rmation or advice on practical questions of d[illegible]ulty [illegible] doubt.

To [illegible]eport co[illegible]ly the proceedings at Agricul[illegible] [illegible]l and [illegible]l throughout the Provinces—[illegible] progr[illegible] of the Herds and Flocks of pro[illegible]; and record the importation of Th[illegible]red [illegible]m abroad.

To watch and report carefully and [illegible]tly t[illegible]ual state and probable [illegible]pects of the P[illegible] [illegible]at home and abroad; a[illegible] speci[illegible]lly prom[illegible]a[illegible] m[illegible]nts designed to secure the [illegible] pric[illegible] h[illegible]rkets for Canadian Farm P[illegible]nce.

To afford the Farmers of the Dominion a common medium, where [illegible] who have for sale Live Stock, or Seed, Grain or L[illegible] [illegible] may wish to buy such, can make their d[illegible] directly to the whole farming population of Ca[illegible]

THE CANADA FARMER will continue to be issued on the fifteenth day of each month,—the form will be the same as now—and each number will contain

FORTY PAGES OF READING MATTER.

The Price will continue, as heretofore,

ONE DOLLAR PER ANNUM, FREE OF POSTAGE.

CLUB RATES FOR 1871.

CLUB OF TEN COPIES	$ 9 00
CLUB OF TWENTY COPIES	16 00
CLUB OF THIRTY COPIES	22 50

☞ And all o[illegible] 7[illegible]ts per copy.

Letters and remittanc[illegible]t to

THE GLOBE PRINTING CO.,

TORONTO, 1st Dec. 18[illegible].

TORONTO, Ont.

END OF FILM

PLEASE REWIND